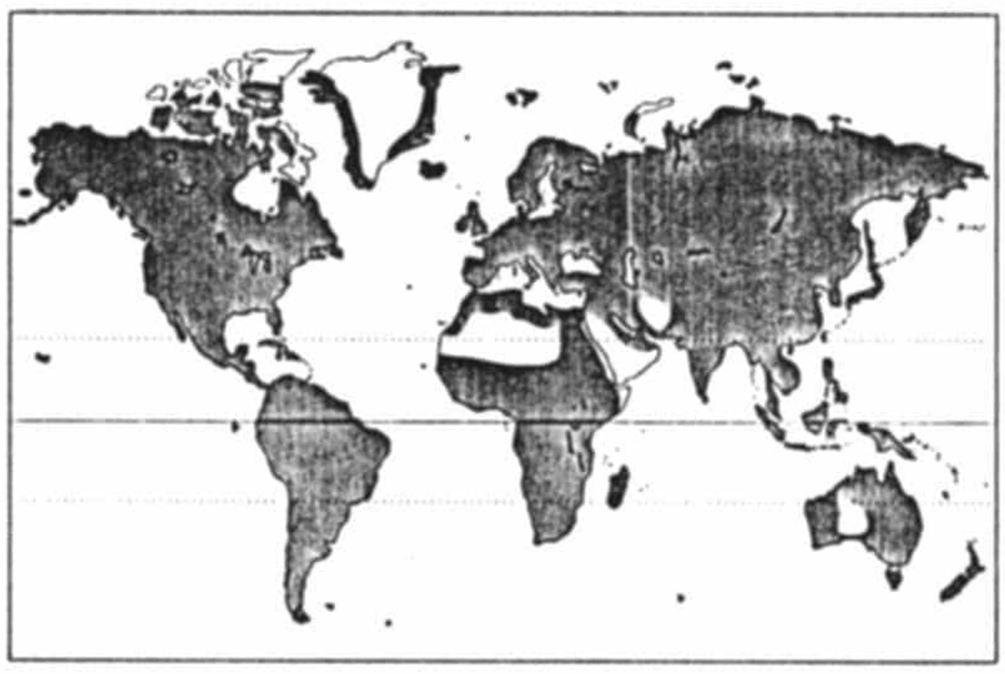
Class AVES

Order ANSERIFORMES

Suborder ANSERES

Family ANATIDAE (DUCKS, GEESE AND SWANS)



- Medium-sized to large waterbirds with plump body, short legs and flat, rounded bill.
- 30-180 cm.

- Cosmopolitan, all regions except Antarctic.
- Wide variety of aquatic habitats, mostly breeding on fresh water.
- 41 genera, 147 species, 238 taxa.
- 16 species threatened; 5 species and 3 subspecies extinct since 1600.

Systematics

The world's 147 living species of ducks, geese and swans, commonly lumped together under the rather vague term "wildfowl", form the large cosmopolitan family Anatidae. Their closest relations are the screamers (Anhimidae) of South America, and together these two families form the order Anseriformes. What is still none too clear, and subject to much debate, is the relationship of the Anseriformes with other bird orders.

According to some authors, the Anseriformes are most closely related to the Galliformes (gamebirds), and there are some indications of a common ancestor from the Cretaceous. These two orders share a number of characters in both morphology and behaviour, but the closest parallel is in breeding biology, including the following: large clutches; nidifugous young; little or no participation of the male in either incubation or brooding; and unstable pairs. However, the traditional view links them more closely with the Ciconiiformes (herons, ibises and storks) and Phoenicopteriformes (flamingos), and this view has been reinforced by the detailed studies carried out on the chemical composition of egg-white proteins.

The first fossil attributable to this family comes from the Upper Eocene, perhaps 40-50 million years ago. Amongst the living genera, the earliest fossil records correspond to *Mergus* and date back to Miocene times. The radiation of the Anseriformes probably started somewhere in the Southern Hemisphere, as the most primitive member of the Anatidae, the Magpie Goose (*Anseranas semipalmata*), is endemic to the Australasian Region, and its relatives the Anhimidae are restricted to South America.

The taxonomic division of the family Anatidae is rather complex and has been much disputed and revised. Most of the controversy is centred around the partition into subfamilies and tribes, whereas there is much more agreement on the total number of species and the taxonomic status of the different forms. The traditional classification of the Anatidae, put forward by J. Delacour and E. Mayr and subsequently modified by Delacour and then P. A. Johnsgard, has been followed by many others, such as F. S. Todd, although Johnsgard himself proposed several changes. A radically different view, based on the findings of B. C. Livezey, has recently been championed by S. C. Madge and H. Burn, while C. G. Sibley and B. L. Monroe, using DNA as a basis for classification, propose an alternative upheaval, so it must be understood that the order followed here, that of Johnsgard, can scarcely be considered definitive.

Relationships within and between the different subdivisions of the Anatidae are generally based on factors such as: structure and proportions; plumage of adults and young; pattern of scales on the tarsus; voice; structure of syrinx and trachea; moult pattern; geographical distribution; and general behaviour. This last aspect is particularly important, as it includes courtship displays, which are species-specific and help to prevent interbreeding.

In the conventional view, the family is arranged into three subfamilies, Anseranatinae, Anserinae and Anatinae. The first is reserved for the primitive, aberrant Magpie Goose, in order to emphasize the differences in anatomy and way of life between this species and all other wildfowl. It is generally accepted that this ancestral form of goose represents an evolutionary link between the wildfowl and the much more terrestrial screamers, though its retention within the Anatidae indicates that it is closer to the wildfowl.

The other two subfamilies correspond roughly to the rather broad division of wildfowl into swans and geese (Anserinae) and ducks (Anatinae). The Anserinae are, in turn, subdivided into four tribes. The tribe Dendrocygnini contains the eight species of whistling-ducks (*Dendrocygna*) and the White-backed Duck (*Thalassornis leuconotus*), a peculiar African species formerly grouped with the stifftails (Oxyurini) but now generally accepted to be more closely allied to the whistling-ducks; nonetheless, some authors isolate it in its own tribe (Thalassornini) or even its own subfamily (Thalassorninae).

The largest tribe of the Anserinae is the Anserini. It includes all the swans, comprising seven species in the genera *Cygnus* and *Coscoroba*, and the "true" geese, comprising 15 species in the genera *Anser* and *Branta*. Some workers have split the Anserini in two, placing the swans in their own tribe, Cygnini, although this view has not received much support so far.

Treatment of the *Cygnus* swans has been quite varied. There are two southern species, the Black Swan (*Cygnus atratus*) and the Black-necked Swan (*Cygnus melanocorypha*), both of which are closely related to the Mute Swan (*Cygnus olor*) of the Northern Hemisphere. The other swans of the Holarctic, sometimes referred to as "wild swans", in contrast with the tame, semi-domesticated Mute Swan, show a great degree of similarity with each other, but little with the rest of the swans, to the point that the four forms commonly recognized have sometimes been separated in their own genus, *Olor*, or even

treated as a single species, known as the Northern Swan. Few now dispute the idea that the Trumpeter Swan (*Cygnus buccinator*) is a good species, and not merely a race of the Whooper Swan (*Cygnus cygnus*), but conversely the Whistling and Bewick's Swans are still lumped together as races of a single species, the Tundra Swan (*Cygnus columbianus*).

The Cape Barren Goose (*Cereopsis novaehollandiae*) is an Australian endemic of disputed affinities. It was formerly considered an aberrant shelduck, and was thus included in the tribe Tadornini; nowadays, however, it is more commonly regarded as distantly related to the swans and true geese and is occasionally included in the tribe Anserini, but more often it is separated in its own tribe, Cereopsini. A similar case is that of another Australian endemic, the Freckled Duck (*Stictonetta naevosa*); it was traditionally included in the tribe Anatini with the dabbling ducks, but it seems more closely linked to the swans and true geese, so at present it is included in the subfamily Anserinae, where it is generally placed in its own tribe, Stictonettini.

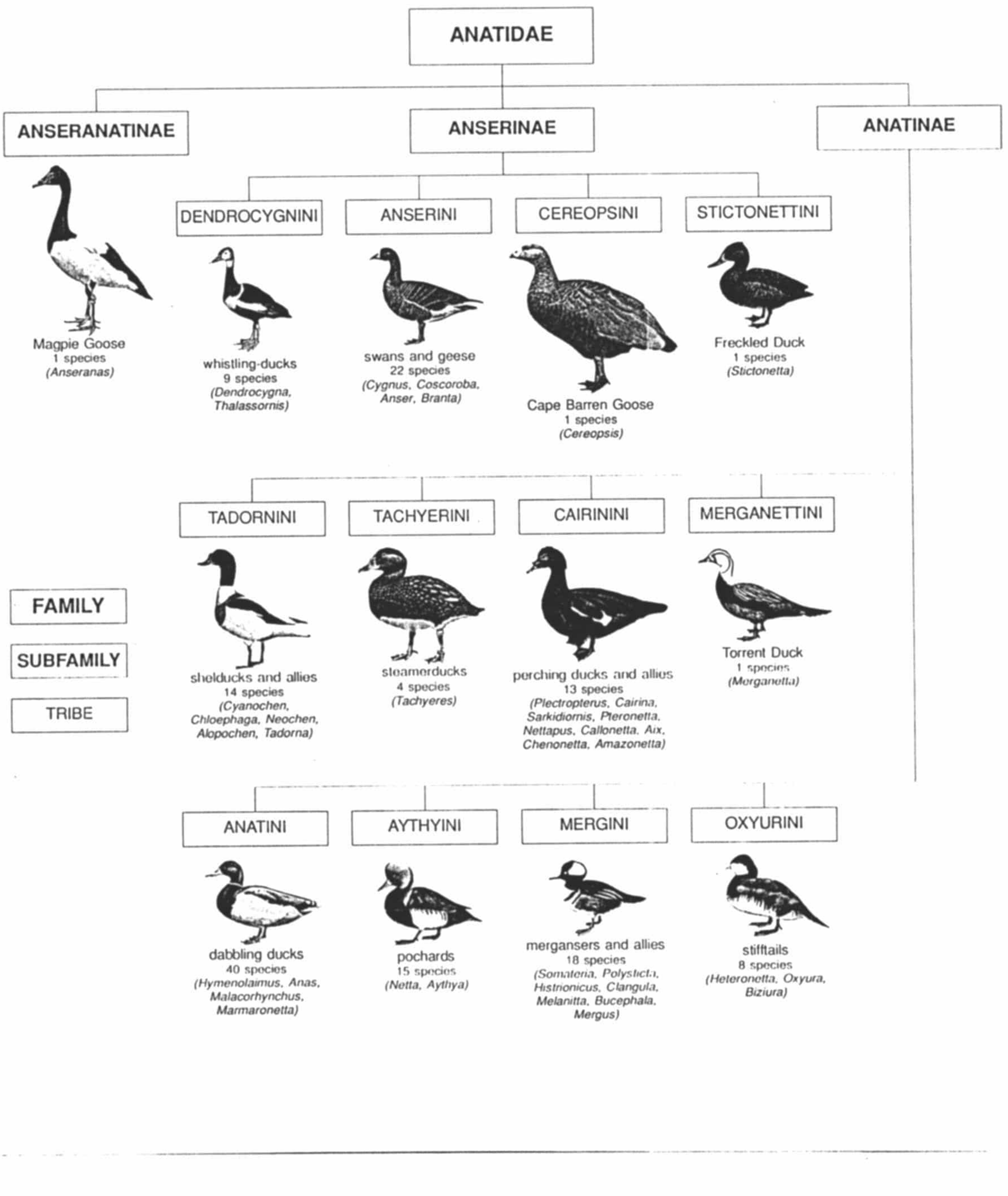
The Anatinae, with eight tribes and 113 species, is the largest of the three subfamilies. Within the Anatinae, the shelducks and sheldgeese, which form the tribe Tadornini, show the closest affinities with the true geese of the Anserini, some species showing intermediate characters and certainly looking quite goose-like. This rather varied group includes the typical shelducks of the nearly cosmopolitan genus *Tadorna* (6 species), the sheldgeese of the endemic South American genus *Chloephaga* (5 species), an aberrant African "goose" (*Cyanochen*) and the monotypic genera *Neochen* and *Alopochen* of South America and Africa respectively.

As the Tadornini represent something of a transitional group, several species of unclear lineage are occasionally incorporated in this tribe, including the monotypic genera *Lophonetta*, *Malacorhynchus*, *Hymenolaimus*, *Cereopsis* and *Merganetta*. However, the inclusion of such assorted species in the Tadornini certainly reduces the homogeneity of the tribe, and some are often isolated in their own tribes, as they can not be shown to have close affinities with any other groups. Thus, the steamerducks (*Tachyeres*) of South America, traditionally considered an aberrant genus within the Tadornini, are now more commonly separated and placed in their own tribe, Tachyerini. These are large ducks that have partially lost the power of flight and comprise four very similar species.

The tribe Cairinini, for want of a better name, are rather loosely termed "perching ducks". With 13 species in nine genera, this tribe forms an extremely heterogeneous group, and its

Subdivision of the Anatidae.

[Figure: Francesc Jutglar & Àngels Jutglar]



Breeding. Season variable according to locality. Forms loose groups; nests in trees or on ground. 6-12 eggs; incubation c. 30 days.
Movements. Resident, with only minor local movements recorded. Has occurred N to Bermuda.
Status and Conservation. RARE. CITES II. Population widely scattered, occurring in small groups; in process of major decline. During 1970's bulk of population reckoned to be in Hispaniola and Cuba; at former, species was not protected and has since declined; at latter, now protected but has also declined greatly in wetlands of Jíbaro, where was common in rice fields, but in 1974 suffered due to programme designed to "control" ducks which damaged rice fields, although hunters actually caused more damage than ducks. In Bahamas, small but apparently secure populations on Andros and Great Inagua, with 10's of birds. One of most numerous populations is in Caiman Is, where more than 400 nested in 1986, with flocks of up to 32 birds, but species is still hunted illegally here. In Jamaica last refuge at Black River Lower Morass. Perhaps minor recovery in Puerto Rico, especially in *Pterocarpus* forest at Lagunas de Humacao, but still very rare. Population of Barbuda probably large. In Greater Antilles, swamps have been extensively drained.
Bibliography. Allen (1962), Biaggi (1983), Bolen (1979), Bolen & Rylander (1973), Bond (1956, 1971), Collar & Andrew (1988), Dollinger (1988), Evans, P.G.H. (1990), Gooders & Boyer (1986), King (1978/79), Lewis & Renton (1989), Mountfort (1988), Phillips (1922-1926), Scott & Carbonell (1986), Stockton (1978), Vincent (1966), Weller (1980).

9. Black-bellied Whistling-duck

Dendrocygna autumnalis

French: Dendrocygne à bec rouge **German**: Rotschnabel-Pfeifgans **Spanish**: Suirirí Piquirrojo
Other common names: Black-bellied/Red-billed Tree Duck, Red-billed Whistling-duck

Taxonomy. *Anas autumnalis* Linnaeus, 1758, America.
Origin of type specimen unclear, leading to confusion over correct allocation of nominate subspecies; northern race alternatively labelled *fulgens*.
Subspecies and Distribution.
D. a. autumnalis (Linnaeus, 1758) - SE Texas to C Panama.
D. a. discolor P.L. Sclater & Salvin, 1873 - E Panama to South America, S to Ecuador in the W and N Argentina in the E.

Descriptive notes. 43-53 cm; 650-1020 g. Unmistakable. Race *discolor* has grey lower neck and breast but intermediate individuals occur. Juvenile duller, having greyish-white belly with cross-barring; bare parts dusky or greyer.
Habitat. Favours tropical lagoons with some tree cover on margins. Often found in vicinity of agricultural land.
Food and Feeding. Eminently vegetarian, basically grass and seeds (grain); small invertebrates (molluscs, insects) also sometimes taken. Feeds mainly on ground by grazing or by wading and dabbling in shallow waters.
Breeding. Season variable according to locality; in S USA starts in Apr. In loose groups; nest usually in tree cavity, occasionally on ground, without material or sometimes with dead grasses woven into shallow bowls. 12-16 eggs; incubation 26-31 days; downy chick is strongly patterned, but mostly black above and yellow below; fledging 53-63 days. Sexual maturity at 1 year. In one study in USA 44% of natural nests hatched; similar success in nestboxes, but 77% in those protected against predators.
Movements. Partially migratory. Northernmost breeding areas deserted in winter, which birds presumably spend in Central America. Otherwise mainly sedentary, but some local movements certainly occur. Regularly reported from West Indies; has occurred N to California.
Status and Conservation. Not globally threatened. Widespread and common. Recent spread over S USA probably favoured by increasing number of small pools provided for cattle to drink at. Large numbers, frequently over 2000 birds, occur in suitable environments. Impressive census results in Mexico, with 47,000 birds nesting at Usumacinta Delta and Tabasco Lagoons. In Costa Rica, 20,000 recorded at Palo Verde National Park and adjacent fauna refuge. Up to 10,000-20,000 birds reported from parts of Venezuela. Like most *Dendrocygna*, not considered important quarry species, but persecuted where concentrates in large numbers and damages crops. CITES III in Honduras.
Bibliography. Allen (1962), Bellrose (1976), Biaggi (1983), Bolen (1967, 1971), Bolen & Forsyth (1967), Bolen & Rylander (1973, 1983), Bolen *et al.* (1964), Cain (1970), Dallmeier (1991), Delnicki (1973), Delnicki & Bolen (1976), Fjeldså & Krabbe (1990), Gómez-Dallmeier & Cringan (1989), Hellmayr & Conover (1948), Hersloff *et al.* (1974), Hilty & Brown (1986), Johnsgard (1975), Markum & Baldassarre (1989b), McCamant & Bolen (1979), Monroe (1968), de la Peña (1986), Ridgely & Gwynne (1989), Ruschi (1979), Rylander & Bolen (1970, 1974a, 1974b, 1980), Schaldach (1963), de Schauensee & Phelps (1978), Scott & Carbonell (1986), Sick (1984), Slud (1964), Wetmore (1965).

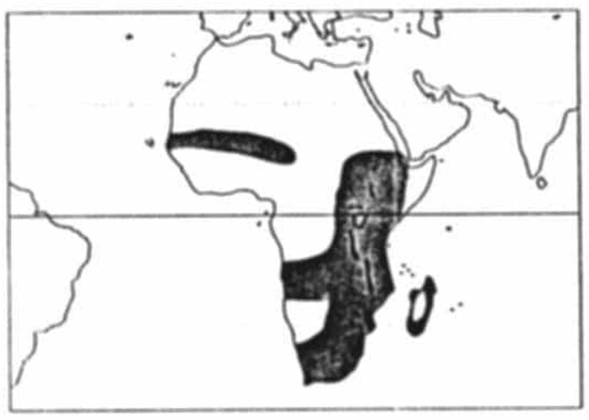
Genus *THALASSORNIS* Eyton, 1838

10. White-backed Duck

Thalassornis leuconotos

French: Erismature à dos blanc **German**: Weißrücken-Pfeifgans **Spanish**: Pato Dorsiblanco

Taxonomy. *Thalassornis leuconotus* Eyton, 1838, Cape of Good Hope.
A distinctive species placed in its own genus, it was formerly considered to be closer to stifftails (tribe Oxyurini), but is now usually regarded as an atypical whistling-duck and included in tribe Dendrocygnini. Some isolate it in its own tribe (Thalassornini) or even subfamily (Thalassorninae). Two subspecies recognized.
Subspecies and Distribution.
T. l. leuconotus Eyton, 1838 - Senegal to Chad; Ethiopia to South Africa.
T. l. insularis Richmond, 1897 - Madagascar.



Descriptive notes. 38-40 cm; 625-790 g. Black rump and uppertail-coverts with narrow white barring; mid-back black. Juvenile darker, less distinctively patterned with black spotted sides of face and neck. Race *insularis* is smaller and more vividly marked.
Habitat. Favours a variety of quiet freshwater lakes, pools, lagoons, marshes and swamps with shallow waters and abundant floating vegetation. Not usually found in open waters.
Food and Feeding. Eminently vegetarian, principally seeds and leaves of aquatic plants, especially water-lilies. Young feed mainly on insect larvae (Chironomidae) and *Polygonum* seeds. Virtually all food obtained by diving in shallow waters.
Breeding. Season variable according to locality, generally coincides with period of higher and more stable water levels. In single pairs or loose groups; nest built with weeds, usually lined with fine vegetable matter, rarely with some down or feathers, hidden amidst reedbeds or on small islands of vegetation, often with a ramp leading to water. 4-10 eggs; incubation 29-36 days; downy chicks have olivaceous buff upperparts, with blackish grey underparts and crown; fledging c. 16 weeks.
Movements. Mostly sedentary, with some local movements largely related to availability of water. Seldom flies during day.
Status and Conservation. Not globally threatened. Still locally common, but has declined in parts of range. Difficult to census as fairly solitary, but apparently very scarce; W African population, apparently isolated from other populations, may be near extinction. Census figures give 500 birds at L Nairasha, Kenya, and also at Kafue Flats, Zambia. In South Africa, frequent to uncommon, but presence and numbers unpredictable. Race *insularis* widespread throughout Madagascar except on High Plateau; formerly quite common, but now rather rare, and by 1989 thought to be extinct at L Aloatra; only fairly common now in marshes at Soalala; this decline attributed to trapping and hunting, although species reputed to make rather bad eating.
Bibliography. Benson & Benson (1975), Brickell (1988), Britton (1980), Brown & Britton (1980), Brown *et al.* (1982), Clancey (1967), Clark, A. (1969b, 1979), Delacour (1932), Elgood (1982), Elwell & McIlleron (1978), Johnsgard (1967), Kear (1967), Langrand (1990), Mackworth-Praed & Grant (1957-1973), Maclean (1985), Milon *et al.* (1973), Perennou (1991a, 1991b), Pinto (1983), Raikow (1971), Wintle (1981), Young (1991b).

Tribe ANSERINI

Genus *CYGNUS* Bechstein, 1803

11. Mute Swan

Cygnus olor

French: Cygne tuberculé **German**: Höckerschwan **Spanish**: Cisne Vulgar

Taxonomy. *Anas Olor* Gmelin, 1789, "Russia, Sibiria, Persico etiam littore maris Caspii".
Despite its all-white plumage, apparently linked more closely to Southern Hemisphere species (*C. atratus*, *C. melanocorypha*) than to northern swans. Hybridization with *C. atratus* recorded in captivity. Monotypic.
Distribution. British Is, C and N Europe E through C Asia to E China. Feral populations in North America, Japan, South Africa, SW Australia and New Zealand.

Descriptive notes. 125-160 cm; 6600-15000 g; wingspan 240 cm. Female averages smaller and has less prominent knob on bill. As in all white *Cygnus*, brownish staining on crown, cheeks and neck occurs. Juvenile can be white, but normally has variable amounts of brownish feathers and small knob on bill.
Habitat. Frequently found in a variety of lowland freshwater marshes, lagoons, rivers, etc.; also on estuaries and sheltered coastal sites. Has adapted to living close to man, now occupying many artificial water bodies, like park lakes, reservoirs, gravel pits, etc.
Food and Feeding. Primarily leafy parts of aquatic vegetation and grain; minor quantities of grasses, small amphibians and aquatic invertebrates (molluscs, insects, worms) are also taken; in one study in Sweden over 95% was submerged vegetation in spring and summer. Feeds mostly by dabbling on water surface and upending; seldom dives.
Breeding. During the local spring; generally in isolated pairs in well defended territories; nest is large mound of vegetation, often floating on water or among reeds. Usually 5-7 eggs (3-12); incubation 35-36 days; chicks have grey down above, white below; fledging 120-150 days. Sexual maturity not until 3 years; annual survival rates of adults 79-94 % in England; oldest ringed bird over 21 years.
Movements. Truly wild populations mainly migratory, particularly where displaced by cold weather; spend winter in more temperate zones. European and feral populations mostly sedentary, males defending territory for most of year. Recorded as vagrant in Pakistan.
Status and Conservation. Not globally threatened. Range increasing due mainly to establishment of feral populations originating from birds introduced for ornamental purposes in urbanized areas. Total Palearctic population numbers c. 500,000 birds. British population stable, estimated at c. 19,000 birds in 1986; increasing in Europe and Asia, with c. 350,000 in USSR by end of breeding season in 1987. Feral populations: c. 200 birds in Japan; c. 20 in Australia; less than 200 in New

Zealand; 4000+ in N America, where noted to be increasing in 1970's; c. 120 in Cape Province, South Africa, in 1970. Lead poisoning due to ingestion of discarded anglers' fishing weights caused decline in British population until use of lead banned. Birds frequently killed or maimed after collisions with overhead wires.

Bibliography. Ali & Ripley (1978), Andersen-Harild (1978), Anon. (1981), Bacon (1980), Bacon & Andersen-Harild (1989), Bauer & Glutz von Blotzheim (1968), Bellrose (1976), Berglund *et al.* (1963), Birkhead (1982a, 1982b, 1983, 1984), Birkhead *et al.* (1983), Birkhead & Perrins (1985, 1986), Brazil (1991), Brickell (1988), Brown *et al.* (1982), Coleman & Minton (1979), Cramp & Simmons (1977), Czapulak & Wieloch (1988), Eltringham (1963a, 1963b, 1966), Fachécopar & Hüe (1978), Fair (1985), Géroudet (1972), Goodman (1989), Grimmett & Jones (1989), Harrison (1988), Huxley (1947), van Ijzendoorn (1951), Jenkins *et al.* (1976), Jogi *et al.* (1974), Kear (1988), Lever (1987), Lüps (1990), Maclean (1985), Marchant, J.H. *et al.* (1990), Marchant, S. & Higgins (1990), Mathiasson (1973), Matthews & Smart (1981), Minton (1971), Monval & Pirot (1989), Munro *et al.* (1968), Muraska & Valius (1968), Ogilvie (1967, 1981, 1986), Paz (1987), de Schneidauer (1961), Scott, D.K. (1984a, 1984b), Scott, D.K. & Birkhead (1983), Scott, P. & Wildfowl Trust (1972), Sears & Bacon (1991), Sokolowski (1960), Sonobe & Izawa (1987), Syroyechkovski (1987), Tenovuo (1976), Ticehurst (1957), Walter (1981), Wieloch (1984).

12. Black Swan

Cygnus atratus

French: Cygne noir **German**: Schwarzschwan **Spanish**: Cisne Negro

Taxonomy. *Anas atrata* Latham, 1790, lakes of Australia.
Sometimes placed in monospecific genus *Chenopis*. Apparently most closely related to *C. olor* and *C. melanocorypha*. Hybridization with *C. olor*, and several species of geese (*Anser*), has been reported in captivity. Monotypic.
Distribution. Australia and Tasmania; introduced and well established in New Zealand.

Descriptive notes. 110-140 cm; 3700-8750 g; wingspan 160-200 cm. Unmistakable. Alula, primaries and outer secondaries white, though normally hidden at rest; reddish or pinkish iris. Female averages smaller and has less bright bill and iris. Juvenile brown, mottled greyish with light-tipped feathers and paler bill.
Habitat. Favours large lakes or lagoons of relatively shallow, permanent and fresh or brackish waters. Also, outside the breeding season, on all sorts of water bodies, including rivers, billabongs and even coastal sites.
Food and Feeding. Almost entirely vegetarian diet, consisting of various aquatic plants (*Typha*, *Potamogeton*, *Myriophyllum*, *Ruppia*), algae and pondweeds. Food is obtained largely by dabbling on surface or by upending; also grazes in dry pasture or flooded fields.
Breeding. Season variable with locality, normally adapted to period of highest water levels. Forms colonies; nest is large mound of floating plant matter or on ground. 5-6 eggs (1-14), more than 8-9 usually laid by 2 females; incubation 35-48 days (usually 36-40); chicks have light grey down; fledging 150-170 days, but can be less when food is plentiful. Sexual maturity at 18-36 months. In one study, 75% of eggs hatched and 49% reached fledging.
Movements. Sedentary in permanent suitable habitat; young and adults from ephemeral waters wander extensively; erratic observations outside normal range frequent. Vagrant to New Guinea.
Status and Conservation. Not globally threatened. Widespread and locally very common in both Australia and New Zealand. May have spread to SW Australia during present century. Concentrations of thousands, and sometimes tens of thousands in New South Wales, at L Cowal, L Brewster and L George. Damage to crops has led to establishment of short hunting season in Victoria and Tasmania. Formerly more abundant in New Zealand until end of 1960's, after which sharp drop, partly due to devastation by storm in 1968; numbers have now recovered quite well, with estimates of 60,000 birds; some commercial exploitation of eggs and also hunting pressure; Chatham Is hold c. 3000 birds.

Bibliography. Braithwaite (1970, 1981, 1982), Bull *et al.* (1985), Chambers (1989), Falla *et al.* (1981), Frith (1967), Guiler (1966), Halse & Jaensch (1989), Lever (1987), Marchant & Higgins (1990), Matthews & Smart (1981), Miers & Williams (1969), Schodde & Tidemann (1988), Scott & Wildfowl Trust (1972), Williams, M.J. (1977, 1979a), Wilmore (1974).

13. Black-necked Swan

Cygnus melanocorypha

French: Cygne à cou noir **German**: Schwarzhalsschwan **Spanish**: Cisne Cuellinegro

Taxonomy. *Anas Melanocoripha* [sic] Molina, 1782, Chile.
Believed to form a complex of species with *C. olor* and *C. atratus*. Sometimes placed in monospecific genus *Sthenelides*. Monotypic.
Distribution. S South America from Tierra del Fuego and Falkland Is N to C Chile and Paraguay; in winter N to Paraná, SE Brazil.

Descriptive notes. 102-124 cm; 3500-6700 g. Unmistakable. Variable white stripe behind eye. Female slightly smaller. Juvenile lacks knob and has varying amounts of greyish- and brownish-tipped feathers.
Habitat. Swamps, freshwater marshes, lagoons of brackish water, shallow lakes and sheltered coastal sites.
Food and Feeding. Eminently vegetarian, mainly stoneworts (*Chara*) and pondweeds (*Potamogeton*); also algae and presumably some aquatic insects and other aquatic invertebrates and fish spawn.
Breeding. Starts in early spring (Jul-Aug). In single pairs or loose groups; nest is large mound of vegetation, in reedbeds or partially floating, preferably on small islets. 4-8 eggs; incubation c. 36 days; chicks have greyish white down; fledging c. 100 days.
Movements. Falkland and northern populations relatively sedentary, but those from higher latitudes descend to lower ones in winter, occurring as far N as Tropic of Capricorn.
Status and Conservation. Not globally threatened. CITES II. Generally common and widespread; has recolonized parts of Chile where had been eradicated by hunting. Largest concentration on record of 5000 birds at Laguna de Chascomús, Argentina. Estimated populations: Brazil, 2000-3000 birds; Uruguay, 20,000; Argentina, 50,000; and Chile, 20,000. Uncommon breeding resident in Falkland Is, with concentrations of c. 100 in most favourable spots. Drainage of marshy areas is main threat; is not a typical quarry species.

Bibliography. Belton (1984), Carp (1991), Dollinger (1988), Fjeldså & Krabbe (1990), Helmayr & Conover (1948), Humphrey *et al.* (1970), Johnsen (1965), Nores & Yzurieta (1980), de la Peña (1986), Ruschi (1979), Salazar (1988), Scott & Carbonell (1986), Scott & Wildfowl Trust (1972), Sears & Bacon (1991), Sick (1984), Weller (1975d), Wilmore (1974), Woods (1988).

14. Trumpeter Swan

Cygnus buccinator

French: Cygne trompette **German**: Trompeterschwan **Spanish**: Cisne Trompetero

Taxonomy. *Cygnus buccinator* Richardson, 1832, Hudson Bay.
Sometimes considered a subspecies of *C. cygnus*, with which it forms a superspecies. Sometimes placed in genus *Olor* with *C. cygnus* and *C. columbianus*. Monotypic.
Distribution. Breeds in Alaska and W Canada, wintering along coastal S Alaska, British Columbia and N USA; also several resident populations in several states of NW USA, mostly from reintroductions.

Descriptive notes. 150-180 cm; 7300-1250 g. Black bill larger than in *C. cygnus*. Female averages smaller. Juvenile has some grey feathers.
Habitat. Swamps, marshes and shallow lakes in boreal forest zone; part of the population winters in estuaries and on sheltered coasts.
Food and Feeding. Diet of adults is almost entirely vegetarian, consisting of leafy parts and stems of various aquatic plants (pondweeds, water-lilies, etc.); seeds and tubers (e.g. potato) are also important food. Cygnets feed mainly on aquatic invertebrates for first weeks.
Breeding. Starts Mar-Apr. In solitary pairs; nest built on the ground, with birds uprooting marsh plants surrounding site, preferably on muskrat houses, on islands or along shoreline. 4-8 eggs; incubation 33-37 days; chicks have pale grey down, whitish below; fledging 84-120 days, according to locality. Sexual maturity at 3-4 years; oldest ringed bird over 24 years, in captivity over 32 years.
Movements. US population mostly sedentary, undertaking only short local movements; Alaskan and Canadian birds fly to Pacific sea coast, where they spend the winter.
Status and Conservation. Not globally threatened. Total population estimated at c. 6000 birds in 1975; total with captive birds included, c. 11,000-12,000 birds. Largest population presumably that of Alaska, with 4500 birds in 1975; at least 2700 seen wintering on Vancouver I in 1989; 643 birds counted in Canada in 1985. Species on verge of extinction in early 20th century, with population of USA numbering only 69 birds in 1932; suffered intense shooting pressure, partly due to large-scale trade in swan skins and feathers; full legal protection and establishment of suitable reserves has allowed populations to recover, and still on increase at present; category in USA has passed from endangered to rare. Main cause of mortality amongst birds analysed in Minnesota was lead poisoning.

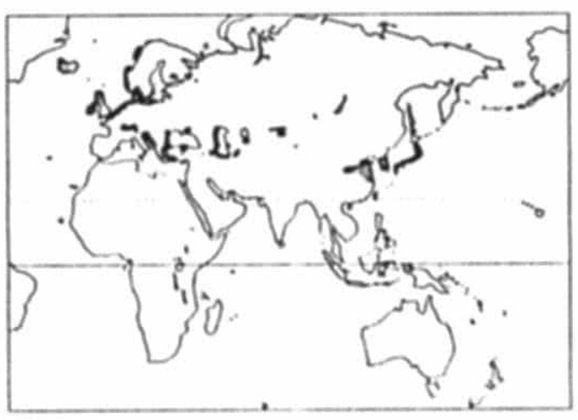
Bibliography. Anon. (1984a), Banko (1960), Bellrose (1976), Gale (1989), Gale *et al.* (1987), Hampton (1981), Hansen *et al.* (1971), Henson & Grant (1991), Hochbaum (1955), Hodges *et al.* (1986), Holton (1982), Lockman *et al.* (1987), Mackay (1987), Matthews & Smart (1981), McKelvey *et al.* (1988), Rohwer *et al.* (1989), Sears & Bacon (1991), Shea (1979), Vincent (1966).

15. Whooper Swan

Cygnus cygnus

French: Cygne chanteur **German**: Singschwan **Spanish**: Cisne Cantor

Taxonomy. *Anas Cygnus* Linnaeus, 1758, Sweden.
Forms superspecies with *C. buccinator*; this sometimes considered a subspecies of present species. Sometimes placed in genus *Olor* with *C. buccinator* and *C. columbianus*. Population of S Greenland and Iceland has been assigned separate subspecies *islandicus*, though doubtfully valid. Monotypic.
Distribution. Iceland and Scandinavia E to NE Siberia; winters in W and C Europe, around Baltic, North, Black, Caspian and Aral Seas, E to coastal China and Japan.



Descriptive notes. 140-165 cm; 7500-12,700 g. Female averages smaller. Juvenile shows greyish feathers and has pinkish rather than yellowish base to bill.
Habitat. Breeds in northern zones, on pools and lakes of shallow fresh waters, preferably in wooded country and only rarely in tundra; also on slow-flowing rivers and sheltered coasts. Winters mainly on low agricultural land, generally not far from coast.
Food and Feeding. Almost entirely vegetarian, mainly aquatic plants (*Zostera*, *Ruppia*, *Potamogeton*) and grass during the breeding season, complemented with grain, potatoes, acorns and other vegetable matter in winter. Forages on water, by head-dipping or upending, or on land.
Breeding. Starts late Apr-May. In solitary pairs in well defended territories; nests on large mound of plant matter, mainly moss and lichens; 4-5 eggs (3-7); incubation c. 35 days; chicks have pale silvery grey down above, white below; fledging c. 87 days. Sexual maturity at c. 4 years; oldest wild bird over 8 years. Mean annual mortality after fledging c. 17 % in one study.
Movements. Migratory. Part of Icelandic population remains in winter. Migrates southwards to temperate areas, sporadically in more southern latitudes in cold winters; vagrant to USA and Pakistan.
Status and Conservation. Not globally threatened. Slight increase in overall numbers since early 1970's. In Finland, increasing 11% annually since 1950, with 5000 birds at end of 1980's. Appar

ently abundant in parts of Siberia. Significant concentrations of thousands of wintering birds in Japan, South Korea and Turkmenistan; c. 100,000 reckoned to winter throughout W Palearctic, perhaps 60% of global population. Some reductions or local extinctions, e.g. formerly bred in Greenland; declines caused by excessive hunting and also habitat destruction, especially in Asian part of breeding range.

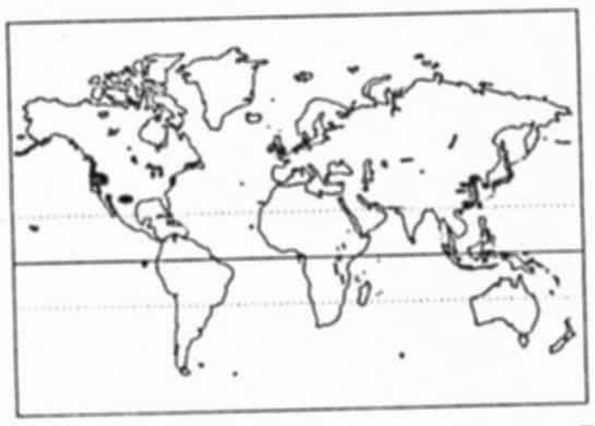
Bibliography. Ali & Ripley (1978), Arvidsson (1987), Bauer & Glutz von Blotzheim (1968), Bellrose (1976), Black (1988), Blomgren (1974), Brazil (1981, 1991), Brazil & Kirk (1979), Brickell (1988), Brown *et al.* (1982), Cramp (1988), Blomgren (1974), Brazil (1981, 1991), Brazil & Kirk (1979), Brickell (1988), Brown *et al.* (1982), Cramp & Simmons (1977), Dementiev & Gladkov (1952), Etchécopar & Hüe (1978), Géroudet (1972), Goodman (1989), Grimmett & Jones (1989), Haapanen *et al.* (1973, 1977), Harrison (1988), Henry (1992), Matthews & Smart (1981), Monval & Pirot (1989), Paz (1987), Perennou & Mundkur (1991), Roberts (1991), de Schauensee (1984), de Schneidauer (1961), Scott & Wildfowl Trust (1972), Sears & Bacon (1991), Sonobe & Izawa (1987), Syroyechkovski (1987), Wilmore (1974).

16. Tundra Swan

Cygnus columbianus

French: Cygne siffleur **German**: Zwergschwan **Spanish**: Cisne Chico
Other common names: Whistling Swan (*columbianus*); Bewick's Swan (*bewickii*)

Taxonomy. *Anas Columbianus* Ord, 1815, The Dalles, Oregon.
Placed by some in genus *Olor* with *C. buccinator* and *C. cygnus*. Subspecies *bewickii* sometimes regarded as full species. Population of NE Asia has been assigned separate subspecies *jankowskii*, though doubtfully valid. Two subspecies recognized.
Subspecies and Distribution.
C. c. bewickii (Yarrell, 1830) - Kola Peninsula E throughout arctic N Siberia; winters in W Europe, S of Caspian Sea and E China, Korea and Japan.
C. c. columbianus (Ord, 1815) - tundra of Arctic North America; winters in W and coastal E USA.



Descriptive notes. 120-150 cm, 4300-9600 g (nominate); 115-140 cm, 3400-7800 g (*bewickii*). Female slightly smaller. Juvenile has some grey feathers and a mostly pinkish bill. Race *bewickii* smaller, with far more yellow on base of bill; considerable variation between individuals in both races.
Habitat. Breeds on shallow pools, lakes and rivers of arctic tundra. Winters on marshes, grasslands or agricultural fields, often in coastal regions.
Food and Feeding. Mainly leaves, roots, rhizomes and stems of aquatic plants (*Potamogeton*, *Zostera*, *Glyceria*) and grasses, complemented with grain and potatoes in winter. Forages by head-dipping and upending in shallow water or by grazing on land. Feeds mostly by day where undisturbed.
Breeding. Starts late May-Jun. In single pairs; nest is large mound of plant matter on elevated ground. 3-5 eggs (2-6); incubation 29-30 (*bewickii*) or 30-32 days (*columbianus*); chicks have pale silvery grey down above, white below; fledging 40-45 (*bewickii*, but few records available) or 60-75 days (*columbianus*). Sexual maturity at 3-4 years; oldest wild bird over 20 years old. Mean annual mortality of birds over 3 years old c. 15 %; so average expectancy of a further c. 6·2 years of life.
Movements. Migratory; winters in temperate areas; sporadically in more southern latitudes during cold winters. Rare vagrant to Pakistan.
Status and Conservation. Not globally threatened. Sizeable populations remain of both races. Winter counts produced 169,300 individuals of nominate *columbianus*; commonest swan in N America, with E population increasing, but W population apparently declining. Race *bewickii* has recently increased in tundra of NE European sector of USSR. Census figures of c. 16,000-17,000 wintering in W Europe, and c. 20,000 wintering in Japan, China and Korea. Illegal hunting continues in NW Europe, and 44% of dead birds analysed contained lead shot; however, population remains stable. In N America, hunting is the main cause of mortality, annually accounting for 4000 birds; next most important factor is lead poisoning; also 6000-10,000 deaths per year due to subsistence hunting and poaching. Possible race *jankowskii* included in CITES II.

Bibliography. Ali & Ripley (1978), Bauer & Glutz von Blotzheim (1968), Bellrose (1976), Black (1988), Brazil (1991), Brickell (1988), Brown *et al.* (1982), Cramp & Simmons (1977), Dementiev & Gladkov (1952), Dollinger (1988), Etchécopar & Hüe (1978), Evans (1978), Géroudet (1972), Harrison (1988), Higuchi *et al.* (1991), Matthews & Smart (1981), Mikami (1989), Miller *et al.* (1988), Monval & Pirot (1989), Paz (1987), Perennou & Mundkur (1991), Rees (1989), Roberts, T.J. (1989, 1991), de Schauensee (1984), de Schneidauer (1961), Scott, D.K. (1977, 1978a, 1978b, 1980, 1988), Scott, P. & Wildfowl Trust (1972), Sears & Bacon (1991), Syroyechkovski (1987), Wilmore (1974).

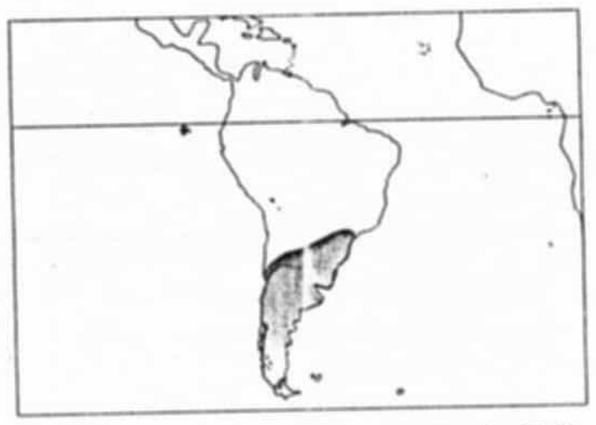
Genus *COSCOROBA* Reichenbach, 1853

17. Coscoroba Swan

Coscoroba coscoroba

French: Coscoroba blanc **German**: Coscorobaschwan **Spanish**: Cisne Coscoroba

Taxonomy. *Anas Coscoroba* Molina, 1782, Chile.
A distinctive species, to some extent intermediate between swans and geese, yet some authors consider it to be most closely related to whistling-ducks (Dendrocygnini). Monotypic.
Distribution. S South America from Tierra del Fuego N to C Chile and N Argentina; winters N to SE Brazil.



Descriptive notes. 90-115 cm; 3200-5400 g. Black tips to 6 external primaries. Breast feathers appear centrally parted. Female has brown iris. Juvenile similar to female, but brownish on head and upperparts; bill greyish.
Habitat. Favours lagoons and large freshwater swamps, preferably those with vegetated margins.
Food and Feeding. Apparently varied diet, consisting of plant matter, small aquatic invertebrates, fish spawn, etc. Forages mainly in shallow water, by swimming or wading, but also grazes on land.
Breeding. During local spring; Oct-Dec in Chile. Usually in single pairs; nest is large mound of aquatic vegetation lined with soft grasses and down situated on small islands, in reedbeds or in long grass, close to water. 4-7 eggs; incubation c. 35 days; downy chicks have three drab grey dorsal bands and black cap.
Movements. Southern breeders migrate to lower latitudes in winter, as far N as Tropic of Capricorn, but other populations mainly sedentary.
Status and Conservation. Not globally threatened. CITES II. Still widespread and quite common locally; decreasing in some areas, especially in Chile, where may now be restricted to extreme S, with total population reckoned at under 1000 birds in 1970's. Partial census of Jul 1990 gave 350 in Uruguay and 12,195 in Argentina. Large numbers occur to N of Isla Grande (Tierra del Fuego), but is far less common than sympatric *Cygnus melanocorypha*. Greatest threat seems to be loss of temperate marsh habitats.

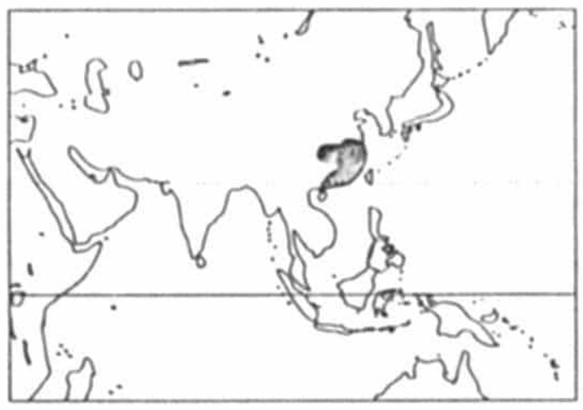
Bibliography. Belton (1984), Carp (1991), Dollinger (1988), Fjeldså & Krabbe (1990), Hellmayr & Conover (1948), Humphrey *et al.* (1970), Johnson (1965), Nores & Yzurieta (1980), de la Peña (1986), Ruschi (1979), Scott & Carbonell (1986), Scott & Wildfowl Trust (1972), Sick (1984), Weller (1975d), Wilmore (1974), Woods (1988).

Genus *ANSER* Brisson, 1760

18. Swan Goose
Anser cygnoides

French: Oie cygnoïde **German**: Schwanengans **Spanish**: Ansar Cisnal
Other common names: Chinese Goose

Taxonomy. *Anas Cygnoid* Linnaeus, 1758, Asia.
Sometimes placed in monospecific genus *Cygnopsis*. Monotypic.
Distribution. NC Asia from SC Siberia to N China.

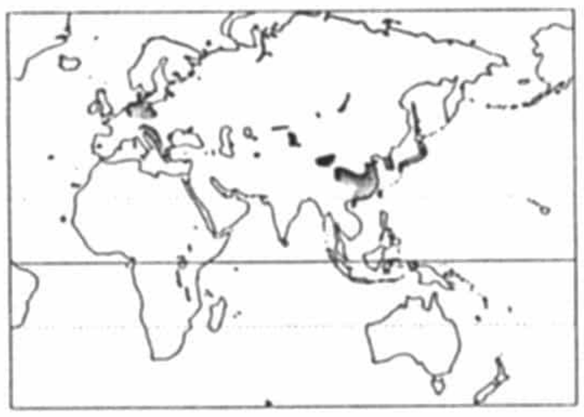


Descriptive notes. 81-94 cm; 2850-3500 g or more. Easily recognized by pattern and shape of head and bill. Female slightly smaller with shorter bill and neck. Juvenile lacks white band around bill and flank markings; upperparts dull greyish brown.
Habitat. Varied, generally in close association with water; also in mountain regions, steppes and floodplains. Breeds in reedbeds along rivers, on grassy hillocks in marshy meadows or on grassy plateaux. Winters in drier ground, often on barren steppes well away from water.
Food and Feeding. Almost exclusively vegetarian diet, partly consisting of sedges. Often grazes on dry land.
Breeding. Starts May. In loose groups or scattered pairs; builds shallow nest of plant matter on ground. Usually 5-6 eggs (5-8); incubation c. 28 days. Sexual maturity at 2-3 years.
Movements. Migratory, winters in E China, formerly also in Korea and Japan where now very rare. Vagrant to Taiwan and SE Siberia.
Status and Conservation. Not globally threatened. Currently considered near-threatened. Range has contracted and numbers have dropped during present century. Population of USSR reckoned to consist of no more than 300-400 pairs. Largest numbers include: 1000 birds in Ogii Nuur, NC Mongolia, in Jun/Jul 1977; 35,000 at Yancheng Marshes, EC China, in Jan 1988; and well over 50,000 recently recorded at Poyang Hu, EC China. Formerly up to 100 wintering in Japan, but continual decrease due to habitat loss culminating in extinction around 1950. Now irregular winter visitor to Japan in insignificant numbers. Severe hunting pressure and habitat destruction at breeding grounds have seriously affected W populations.
Bibliography. Anon. (1984a), Brazil (1991), Dementiev & Gladkov (1952), Etchécopar & Hüe (1978), Ferguson (1966), Flint *et al.* (1984), Perennou & Mundkur (1991), de Schauensee (1984), Sonobe & Izawa (1987), Uspenski (1965).

19. Bean Goose
Anser fabalis

French: Oie des moissons **German**: Saatgans **Spanish**: Ansar Campestre

Taxonomy. *Anas Fabalis* Latham, 1787, Great Britain.
Forms superspecies with *A. brachyrhynchus*, which has been considered race of present species. Five subspecies recognized.
Subspecies and Distribution.
A. f. fabalis (Latham, 1787) - taiga from Scandinavia E to Ural Mts.
A. f. johanseni Delacour, 1951 - taiga and wooded tundra from Ural Mts to L Baikal.
A. f. middendorffii Severtsov, 1873 - taiga of E Siberia, E of L Baikal.
A. f. rossicus Buturlin, 1933 - tundra of N Russia and NW Siberia, from Kanin to Taymyr Peninsulas.
A. f. serrirostris Swinhoe, 1871 - tundra of NE Siberia, from Lena Delta to Anadyrland.



Descriptive notes. 66-89 cm; 3171-3948 g; wingspan 142-175 cm. Juvenile as adult though duller and with less conspicuous light edging on mantle. Subspecies vary in colour and structure; two extremes are: *rossicus*, small, strong-billed with short neck and legs; *middendorffii*, large, with longer neck and legs and more slender bill.
Habitat. Breeds on lakes, pools and rivers in high Arctic or taiga zone, according to subspecies. Winters in open country, on marshes or agricultural land.
Food and Feeding. Mostly vegetarian; herbs, grasses and sedges; also berries during breeding season and grain (corn), beans and potatoes in winter. Generally forages on foot on dry land.
Breeding. Starts May/Jun. In single pairs or loose groups; builds shallow nest of vegetation, lined with down, in scrape in ground. Usually 4-6 eggs (3-8); incubation c. 27-29 days; chicks have olive-brown down above, yellowish below; fledging c. 40 days. Sexual maturity at 2-3 years.
Movements. Migratory, winters mostly on coastal plains in NW and Central Europe and E Asia. Sporadically in more southern latitudes during cold winters.
Status and Conservation. Not globally threatened. Widespread and numerous. Winter counts indicate 100,000-200,000 birds in Netherlands. Before 1946, c. 18,000 wintered in Japan, but species has declined markedly due to hunting and habitat loss, e.g. in Norway and Sweden; partial recovery began in 1971 after hunting banned, and at present winter population includes 3000+ of race *serrirostris* and 3000+ of race *middendorffii*. Up to 10,000+ counted in partial winter censuses in China and Korea.
Bibliography. Anon (1986-1990), Bauer & Glutz von Blotzheim (1968), Boertmann (1991), Brazil (1991), Brickell (1988), Brown *et al.* (1982), Cramp & Simmons (1977), van Eerden (1990), Etchécopar & Hüe (1978), Géroudet (1972), Grimmett & Jones (1989), Harrison (1988), Kurechi (1991), Madsen (1991), Nilsson & Persson (1989a, 1989b), Owen (1976), Owen & Black (1991), Palacios *et al.* (1991), Perennou & Mundkur (1991), Persson (1989), de Schauensee (1984), de Schneidauer (1961), Scott & Fisher (1953).

20. Pink-footed Goose
Anser brachyrhynchus

French: Oie à bec court **German**: Kurzschnabelgans **Spanish**: Ansar Piquicorto
Other common names: Pink-footed Bean Goose

Taxonomy. *Anser Brachyrhynchus* Baillon, 1834, Abbeville, lower Somme River, France.
Sometimes considered race of *A. fabalis*, with which forms superspecies. Monotypic.
Distribution. E Greenland, Iceland, Svalbard (Spitzbergen).

Descriptive notes. 60-75 cm; 2750-3500 g; wingspan 135-170 cm. Reminiscent of *A. fabalis* but smaller, with shorter bill and pink legs. Juvenile similar to adult, but duller and browner.
Habitat. Breeds on rocky outcrops, crags and gorges in very open Arctic tundra. Winters in coastal estuaries and on flat agricultural land.
Food and Feeding. Almost entirely vegetarian; leaves, stems, roots, berries and seedheads of sedges, mosses, lichens, during breeding season; grain, vegetables, potatoes and grasses, in winter. Feeds largely on dry (agricultural) land; also in water.
Breeding. Starts May. In rather loose colonies; builds shallow nest of plant matter on ground. Usually 3-5 eggs; incubation c. 26-27 days; chicks have brownish olive down above, yellowish below; fledging c. 56 days. Sexual maturity at 3 years, occasionally 2.
Movements. Migratory, Greenland and Icelandic populations winter mostly in Scotland and N and E England; Svalbard birds winter along E shores of N Sea. Sporadically in more southern latitudes during cold winters.
Status and Conservation. Not globally threatened. Rather numerous within its limited range. Most of world population winters in British Is, with c. 70,000-100,000. Population of Svalbard numbers c. 30,000 birds, almost all of which winter in Netherlands. Breeding populations of Iceland and Greenland number c. 10,000 pairs and 1000 pairs respectively; marked increase in recent years, probably due to protection of sites and reduction of hunting; in parts of winter quarters, agricultural changes have had negative effects on populations, e.g. in Germany.
Bibliography. Anon. (1986-1990), Bauer & Glutz von Blotzheim (1968), Bell (1988), Bell *et al.* (1988), Cramp & Simmons (1977), Dementiev & Gladkov (1952), van Eerden (1990), Fox, Gitay *et al.* (1989), Fox, Mitchell *et al.* (1989), Géroudet (1972), Hardy (1967), Harrison (1988), Lazarus & Inglis (1978), Lok & Vink (1979), Madsen (1991), Meire *et al.* (1988), Ogilvie (1978), Ogilvie & Boyd (1976), Owen (1976), Owen & Black (1991), Philippona & Smith (1978), de Schneidauer (1961), Scott & Fisher (1953).

21. Greater White-fronted Goose
Anser albifrons

French: Oie rieuse **German**: Bläßgans **Spanish**: Ansar Careto
Other common names: Whitefront; European White-fronted Goose (*albifrons*); Pacific White-fronted Goose (*frontalis*); Gambel White-fronted Goose (*gambeli*); Tule White-fronted/Tule Goose (*elgasi*); Greenland White-fronted Goose (*flavirostris*)

Taxonomy. *Branta albifrons* Scopoli, 1769, no locality = ? northern Italy.
Forms superspecies with *A. erythropus*. Validity of race *elgasi* has been questioned. Five subspecies recognized.
Subspecies and Distribution.
A. a. albifrons (Scopoli, 1769) - N Russia and Siberia from Kanin Peninsula to R Kolyma.
A. a. frontalis Baird, 1858 - E Siberia from R Kolyma eastwards to Arctic Canada.
A. a. gambeli Hartlaub, 1852 - taiga of NW Canada.
A. a. elgasi Delacour & Ripley, 1975 - SW Alaska.
A. a. flavirostris Dalgety & Scott, 1948 - W Greenland.

Descriptive notes. 65-86 cm; 1700-3000 g; wingspan 130-165 cm. Only confusion possible with *A. erythropus*, but larger, paler and with less white on forehead. Juvenile lacks black ventral markings and white facial patch and has less conspicuous white markings on flanks and upper surfaces. Subspecies vary mainly in size and coloration; nominate smallest and palest.
Habitat. Breeds in open tundra near marshes, lakes, pools and rivers, near coast as well as inland. Winters in open country, on steppe and farmland, or in marshy habitats.
Food and Feeding. Roots, leaves, stems and seeds of various plants, herbs, berries, grasses and sedges; also grain (corn, oats), potatoes and sprouting cereals in winter. Forages mostly by grazing on dry land.
Breeding. Starts late May/Jun. In single pairs or loose groups; builds shallow nest of vegetation, sparsely lined with down and feathers, on ground. Usually 5-6 eggs (3-7); incubation 22-28 days; chicks have brownish olive down above, pale grey below; fledging c. 40-43 days. Sexual maturity at 3 years.
Movements. Migratory, spends winter months in fixed areas at lower latitudes, mostly in temperate Europe, Asia and North America. Occasionally further S during cold winters.

On following pages: 22. Lesser White-fronted Goose (*Anser erythropus*); 23. Greylag Goose (*Anser anser*); 24. Bar-headed Goose (*Anser indicus*); 25. Snow Goose (*Anser caerulescens*); 26. Ross's Goose (*Anser rossii*); 27. Emperor Goose (*Anser canagicus*); 28. Hawaiian Goose (*Branta sandvicensis*); 29. Canada Goose (*Branta canadensis*); 30. Barnacle Goose (*Branta leucopsis*); 31. Brent Goose (*Branta bernicla*); 32. Red-breasted Goose (*Branta ruficollis*).

Status and Conservation. Not globally threatened. Generally widespread and abundant, although some races scarce: *flavirostris* amongst least numerous; only 1200-1500 individuals of *elgasi* located in 1973/74 census; largest known concentration of *gambeli* was 7990 birds at Tamesí and Panuco Deltas, Mexico, in winter 1980, and this race appears to be very uncommon in USA. Mid-continent wintering populations of N America: 102,000 birds in W, where noted to be decreasing in 1989; in C, has increased from 39,300 in 1970 to 116,500 in 1988; in E, 86,000 and increasing. In Japan, has risen from 3000 birds in 1971, when hunting banned, to 19,000 birds in winter 1987/88, almost all of race *frontalis*. Winter population of Netherlands c. 300,000-400,000 (*albifrons*). Intense pressure from hunting in some places. Habitat destruction is main threat, especially significant for less numerous races.

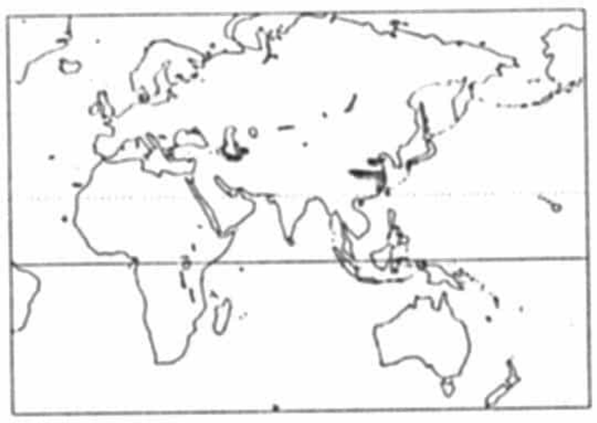
Bibliography. Anon. (1986-1990), Barry (1966), Bauer, R.D. (1979), Bauer, K.M. & Glutz von Blotzheim (1968), Bellrose (1976), Boyd (1953), Brazil (1991), Brickell (1988), Brown *et al.* (1982), Budeau (1989), Cramp & Simmons (1977), Dementiev & Gladkov (1952), van Eerden (1990), Ely (1979), Etchécopar & Hüe (1978), Fox & Stroud (1981), Géroudet (1972), Goodman (1989), Harrison (1988), van Impe (1978), King (1978/79), Krogman (1978, 1979), Lazarus (1978), Madsen (1991), McCabe (1990), Meire *et al.* (1988), Mickelson (1973), Nankinov (1991), Norriss & Wilson (1988), Ogilvie (1978), Owen (1972, 1976), Owen & Black (1991), Perennou & Mundkur (1991), Philipona (1972), Philipona & Mulder (1965), de Schneidauer (1961), Stroud (1982), Terres (1980), Vincent (1966), Würdinger (1970), Ysebaert *et al.* (1988).

22. Lesser White-fronted Goose

Anser erythropus

French: Oie naine **German**: Zwerggans **Spanish**: Ansar Chico

Taxonomy. *Anas erythropus* Linnaeus, 1758, "Europa septentrionalis" = northern Sweden.
Forms superspecies with *A. albifrons*. Monotypic.
Distribution. Narrow band across Arctic Eurasia.



Descriptive notes. 53-66 cm; 1300-2300 g. White forehead reminiscent of *A. albifrons* and also has white claws; however, present species clearly smaller, has yellow eye-ring, more white on forehead and darker head, neck and upperparts. Female slightly smaller. Juvenile lacks white forehead, black spotting underneath and transverse lines on upperparts.
Habitat. Favours variety of Arctic open habitats, particularly scrub-covered and lightly wooded tundra near taiga zone; also lakes and slopes in mountain regions. Winters mostly on dry ground, steppe and agricultural land.
Food and Feeding. Essentially vegetarian; mainly green parts of grasses, plants and small bushes. Feeds mostly on land, by grazing.
Breeding. Starts late May/Jun. In single pairs; nest is shallow depression on ground lined with grass, moss and down. Usually 4-6 eggs (2-8); incubation c. 25-28 days; chicks have dark brown down above, yellowish below; fledging c. 35-40 days. Sexual maturity at 3, occasionally 2, years.
Movements. Migratory, main wintering areas on coastal plains of Caspian and Black Seas and in E China. Occasionally mixes with flocks of *A. albifrons* and occurs much further W than normal range; regular in Britain.
Status and Conservation. RARE. Marked decline during present century, of up to 95% in places; causes not well known. In 1965, total population estimated at 100,000, majority wintering on shores of Caspian Sea; during 1930's was considered most abundant goose wintering on R Yangtze. USSR breeding population perhaps concentrated in region of Yamal Peninsula and lower reaches of Ob, with 6000-10,000 birds. In past was widespread winter visitor to Japan, but now very few birds, normally mixed with groups of *A. albifrons*. Only large concentration in recent years of 14,000 birds at Poyang Hu, EC China, in Jan 1988. Reckoned to be endangered in Europe: best wintering grounds seem to be on Pannoic Plains, Hungary, where species formerly very abundant, but now amasses only a few thousand birds. Very small numbers winter at Evros Delta, N Greece, where threatened by habitat destruction and shooting.

Bibliography. Bauer & Glutz von Blotzheim (1968), Brazil (1991), Brickell (1988), Brown *et al.* (1982), Collar & Andrew (1988), Cramp & Simmons (1977), Dementiev & Gladkov (1952), Etchécopar & Hüe (1978), Géroudet (1972), Grimmett & Jones (1989), Handrinos & Goutner (1990), Hudson (1975), Mountfort (1988), Ogilvie (1978), Owen (1977), Roberts (1991), de Schauensee (1984), de Schneidauer (1961), Sterbetz (1990).

23. Greylag Goose

Anser anser

French: Oie cendrée **German**: Graugans **Spanish**: Ansar Común
Other common names: Grey Goose; Western Greylag Goose (*anser*); Eastern Greylag Goose (*rubrirostris*)

Taxonomy. *Anas Anser* Linnaeus, 1758, Europe and northern North America.
Two subspecies recognized.
Subspecies and Distribution.
A. a. anser (Linnaeus, 1758) - Iceland, N and C Europe.
A. a. rubrirostris Swinhoe, 1871 - Turkey and USSR to NE China.

Descriptive notes. 76-89 cm; 2500-4100 g; wingspan 147-180 cm. Distinguished from other *Anser* by basically uniform coloration of body and bill; no black marks on bill; sometimes black spots or blotches present on belly. Juvenile generally less strongly patterned dorsally and overall has more mottled plumage. Subspecies *rubrirostris* has pink bill and paler plumage.
Habitat. Variety of habitats generally associated with water in open country, often with fringe vegetation or near grasslands. Winters on farmland in open country or in swamps, lakes and coastal lagoons.
Food and Feeding. Essentially vegetarian; grass, roots, leaves, stems, seed-heads, fruits and sprouts of wide variety of plants, complemented in winter with grain, potatoes and other vegetables. Forages mainly on land, by grazing, but also on water, where it sometimes upends.
Breeding. Starts Mar/Apr. Often in loose colonies; builds shallow nest of reed stems and grass, lined with down, among reedbeds, on ground or in trees. Usually 4-6 eggs (3-12); incubation c. 27-28 days; chicks have brownish olive down above, yellow below; fledging c. 50-60 days. Sexual maturity at 3, occasionally 2, years.
Movements. A few populations sedentary but most birds move southwards to winter in traditional sites at lower latitudes; many European birds follow French coast and concentrate in large numbers, up to 80,000 in Dec/Jan, in Doñana marshes, SW Spain. Irregular movements often occur as a result of extensive icing over in particularly bad winters.
Status and Conservation. Not globally threatened. Abundant, especially in W Europe, where increasing, with several hundred thousand birds; population of Iceland grew from 3500 pairs in 1960 to c. 18,500 in 1973. Winter census in 1991 gave 48,355 in Iran. Asian race *rubrirostris* not generally abundant, and may be declining due to effects of human pressure which remains intense, but some notable concentrations: 700 birds in wetlands of Dudhwa National Park, N India, in Jan 1987; 2350 birds at Yancheng Marshes, and 10,000 at Dongting Lakes, China, in Jan 1988. Species still suffers considerable hunting pressure throughout much of range; often comes into conflict with farmers, as can cause substantial crop damage. In many areas has been negatively affected by drainage and conversion of wetlands. Interbreeding with feral stock may reduce genetic purity to fair extent. Successfully reintroduced in some areas.

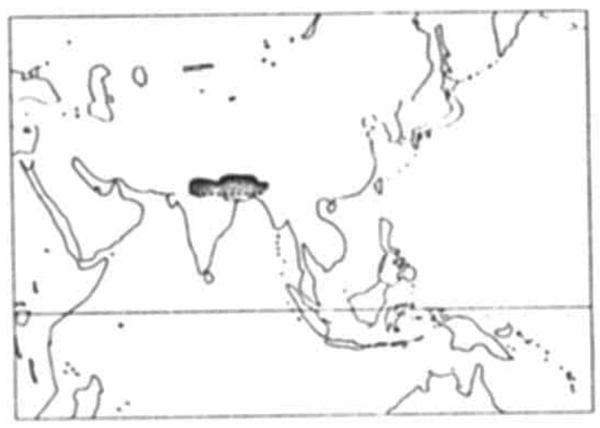
Bibliography. Amat (1986), Anon. (1986-1990), Bauer & Glutz von Blotzheim (1968), Bell (1988), Bell *et al.* (1988), Brazil (1991), Brickell (1988), Brown *et al.* (1982), Cramp & Simmons (1977), Dementiev & Gladkov (1952), Dick (1988a, 1988b), van Eerden (1990), Etchécopar & Hüe (1978), Fisher (1965), Fox, Gitay *et al.* (1989), Géroudet (1972), Harrison (1988), Heath (1971), Hudec & Rooth (1970), Kalas (1979), Lorenz (1950, 1979), Lorenz & Tinbergen (1939), Madsen (1991), Malik (1988), Newton & Kerbes (1974), Ogilvie (1978), Ogilvie & Boyd (1976), Owen (1976), Owen & Black (1991), Parasharya *et al.* (1990), Paz (1987), Raol (1988), Richardson (1990), Roberts (1991), Rooth (1971), de Schneidauer (1961), Thorsteinsson *et al.* (1991), Woods (1988), Young (1972).

24. Bar-headed Goose

Anser indicus

French: Oie à tête barrée **German**: Streifengans **Spanish**: Ansar Indio

Taxonomy. *Anas indica* Latham, 1790, India in winter, and Tibet.
Sometimes placed in monospecific genus *Eulabeia*. Monotypic.
Distribution. C Asia, mainly Mongolia and China.



Descriptive notes. 71-76 cm; 2000-3000 g. Unmistakable. Sexes alike. Juvenile has pale grey head and neck with dark brown line through eyes, across crown and backwards down neck.
Habitat. Breeds on variety of wetlands in highland plateaux, generally at 4000-5000 m, preferably near rocky outcrops. Winters in lowland swamps, lakes and rivers.
Food and Feeding. Mainly vegetarian; grasses, roots, stems and green parts of plants and sedges; in winter also grain, tubers and other vegetables, and seaweed on coast. Forages mainly on land, by grazing; also on water.
Breeding. Starts late May/Jun. In colonies; builds shallow nest of vegetation among marshes, on ground or in trees. Usually 4-6 eggs (2-8); incubation 27-30 days; chicks have pale greyish brown down above, pale yellow below; fledging c. 53 days.
Movements. Majority of birds migratory, flying southwards to winter in northern India and adjacent countries.
Status and Conservation. Not globally threatened. Currently considered near-threatened. Has suffered severe reduction in numbers during present century. Fairly numerous in China, with concentrations of more than 1000 in some places, especially in W; in Longbaotan Nature Reserve nesting population increased during 1980's, with 2000 pairs in 1986. Current breeding population of China estimated at c. 20,000 birds, mainly in Qinghai-Tibet Plateau; total number wintering in China estimated at under 8000. Main wintering grounds in India, with 14,112 counted in 1990; also, to lesser extent, in Bangladesh, Nepal, Burma and Pakistan. Threatened by persistent direct human persecution, especially through shooting and egg-collecting, and also by habitat destruction.

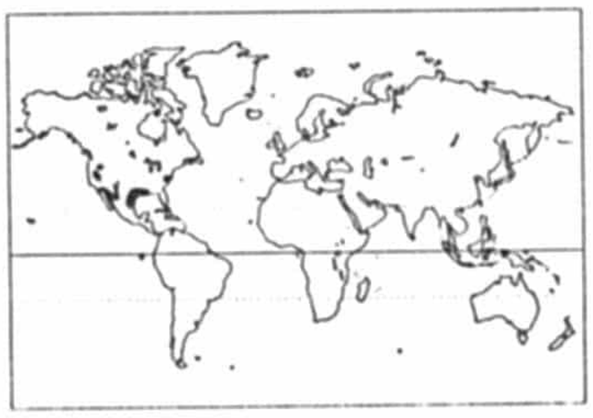
Bibliography. Ali & Ripley (1978), Bauer & Glutz von Blotzheim (1968), Chaudhry (1991), Dementiev & Gladkov (1952), Etchécopar & Hüe (1978), Fu Chun-li & Gu Jing-he (1988), Gao Yuan-hong (1988), Gole (1982), Hiebl & Braunitzer (1988), Himmatsinhji & Bapat (1989), Hüe & Etchécopar (1970), Kydyraliew (1967), Lamprecht (1986a, 1986b, 1987), Lamprecht & Buhrow (1987), Lu (1991), Perennou & Mundkur (1991), Raol (1988), Roberts (1991), de Schauensee (1984), Schindler (1983), Schneider & Lamprecht (1980), Wang Xia (1981), Weigmann & Lamprecht (1991), Würdinger (1970, 1973, 1978, 1980), Xian Yao-hua (1964).

25. Snow Goose

Anser caerulescens

French: Oie des neiges **German**: Schneegans **Spanish**: Ansar Nival
Other common names: Greater Snow Goose (*atlanticus*); Lesser Snow Goose, Blue Goose (*caerulescens*)

Taxonomy. *Anas caerulescens* Linnaeus, 1758, Hudson Bay.
Sometimes placed in genus *Chen* together with *A. rossii*. Two subspecies recognized.
Subspecies and Distribution.
A. c. caerulescens (Linnaeus, 1758) - Wrangel I (off NE USSR); N Alaska E to Baffin I.
A. c. atlanticus (Kennard, 1927) - NW Greenland and islands in N Baffin Bay.
Descriptive notes. 66-84 cm; c. 2500-3300 g; wingspan 132-165 cm. Only possible confusion between white morph and *A. rossii*, but present species larger and with different bill. Blue morph, common in nominate race, only has white on head and upper neck. Head often shows rusty staining. Juveniles of white morph have mottled greyish head and neck, ashy-brown back and scapulars with white edging; secondaries, bill and legs dusky. Blue morph young birds lack white on head; greater secondary coverts are shorter and pale grey and all soft parts are duskily coloured. Subspecies *atlanticus* slightly larger; blue morph is extremely rare.
Habitat. Low, grassy tundra, generally in close association with water or on stony ground. Winters on low agricultural land, usually near coast.
Food and Feeding. Essentially vegetarian; roots, tubers, leaves, grasses, stems and seed-heads of various aquatic plants and sedges; in winter also grain and vegetables. Forages mainly on rough pastures, swamps and dry arable land, by grazing; also feeds while on water.



Breeding. Starts Jun. In colonies; nest is shallow depression filled with moss and lined with grass and down, built on ground. Usually 4-5 eggs (2-10); incubation 23-25 days; chicks have olive buff down above, paler below, or mostly olive grey in blue phase; fledging 40-50 days. Sexual maturity at 2 years, though birds do not usually nest until 3-4 years.
Movements. Migratory, departs breeding grounds to winter along Atlantic and Gulf coasts of USA, and in SW states and N Mexico. Irregular in Hawaii and E Asia. Vagrant to NW Europe.
Status and Conservation. Not globally threatened. Numerous, with increase of nominate race in C North America, from 424,600 in 1969 to 1,358,000 in 1988; increase may be due to more rigorous control of hunting. Only Siberian breeding grounds on Wrangel I held 140,000 birds in autumn 1987; said to be declining since recent settlement on island and launching of reindeer farming, as deer cause damage to colony and predatory Arctic fox (*Alopex lagopus*) has increased in number due to surfeit of waste products around farm buildings; hunting on winter quarters in W USA has been regulated. Formerly abundant in winter in Japan, but wintering population suddenly disappeared around 1895, probably due to proliferation of firearms; since 1950's has started to recover and now recorded almost annually, though in very small numbers. Some birds winter in Mexico, with concentrations of up to 2000-3500 in favourable areas. Race *atlanticus* has increased even more than nominate race: 41,800 in 1950, 198,000 in 1988 wintering in E North America; increase due to expansion of range made possible by adaptation to new feeding habitats, such as upland agricultural fields.
Bibliography. Alisauskas *et al.* (1988), Alisauskas & Ankney (1992), Ankney (1977), Ankney & MacInnes (1978), Armstrong (1983), Bartlett (1975), Bauer & Glutz von Blotzheim (1968), Bedard & Lapointe (1991), Bellrose (1976), Brazil (1991), Cooch, F.G. (1958), Cooch, E.G. & Cooke (1991), Cooch E.G. *et al.* (1989), Cooke & McNallay (1975), Cooke, Findlay *et al.* (1985), Cooke, MacInnes & Prevett (1975), Cramp & Simmons (1977), Flint *et al.* (1984), Gallico (1946), Gauthier & Bédard (1985), Gregoire (1985), Harwood (1977), Johnsgard (1974), Kerbes (1988), Kharitonov (1988), Lank, Cooch *et al.* (1989), Lank, Mineau *et al.* (1989), Lessells (1987), McCabe (1990), McKelvey *et al.* (1989), Monroe (1968), Prevett (1973), Prevett & MacInnes (1980), Reed (1990), de Schneidauer (1961), Syroechkovsky (1975), Terres (1980), Thomas (1990), Trauger *et al.* (1971), Turcotte & Bedard (1989a, 1989b), Würdinger (1970).

26. Ross's Goose

Anser rossii

French: Oie de Ross **German**: Zwergschneegans **Spanish**: Ansar de Ross

Taxonomy. *Anser Rossii* Cassin, 1861, Great Slave Lake.
Sometimes placed in genus *Chen* together with *A. caerulescens*. Monotypic.
Distribution. Arctic Canada, almost entirely in R Perry region.

Descriptive notes. 53-66 cm; 1224-1633 g. Female averages smaller. Smaller than *A. caerulescens*; shorter bill with different pattern and colour. Very rare blue morph, similar to that of *A. caerulescens*, but apparently with more white on underparts and less on head and neck. Juvenile brownish grey on head, back and scapulars with greyer or browner flight-feathers.
Habitat. Breeds primarily on predator-free rocky or scrubby islands in large lakes of Arctic zone. Winters on low agricultural land.
Food and Feeding. Essentially vegetarian; roots, leaves, stems and green parts of aquatic plants and sedges; also grain (barley, rice) and green grasses, outside breeding season.
Breeding. Starts Jun. In colonies; nest is shallow mound of twigs, grass, moss and lichens, lined with down, built on ground. Usually 4-5 eggs (2-6); incubation c. 21-22 days; chicks have greyish down above, paler below; fledging c. 40 days. Sexual maturity at 2-3 years.
Movements. Migratory, main wintering area in California (Sacramento Valley), but also in New Mexico and along Gulf Coast of USA. Vagrant elsewhere in North America and perhaps to NW Europe, though some escapes certainly involved.
Status and Conservation. Not globally threatened. Total population estimated at 77,300 birds in 1976. Increasing in recent decades, although still legally hunted in places. Average wintering population in N America in period 1956-1974 estimated at 23,400 birds. Potential threats include dependence of large part of population on very limited number of wintering grounds, making it very vulnerable to disease or natural disasters; also fact that species hybridizes with *A. caerulescens*, producing fertile hybrids.
Bibliography. Armstrong (1983), Bellrose (1976), Garner (1991), Haas (1991), MacLandres (1979), McCabe (1990), Plunkett (1989), Robinson (1988, 1991), Ryder, J.P. (1967, 1970, 1972), Scott & Carbonell (1986), Svingen (1991), Terres (1980), Thomas (1990), Trauger *et al.* (1971).

27. Emperor Goose

Anser canagicus

French: Oie empereur **German**: Kaisergans **Spanish**: Ansar Emperador
Other common names: Beach Goose

Taxonomy. *Anas canagicus* Sevastianov, 1802, Kanaga Island, Aleutian Islands.
Sometimes placed in monospecific genus *Philacte*. Monotypic.
Distribution. NE Siberia, W Alaska.
Descriptive notes. 66-89 cm; 2766-3129 g. Unmistakable. Very different appearance when strongly stained. Juvenile duller with grey mottling on head and foreneck; brown rather than black barring on back; black bill and olive brown legs.
Habitat. Open sites in Arctic tundra, near coastal lagoons or inland, near freshwater pools and lakes. Winters along rocky coastline and on sheltered sites with soft shores.
Food and Feeding. Grasses, leaves of sedges and berries on breeding grounds; also seaweed and algae along coast, complemented with some animal food (barnacles). Feeds mainly by grazing.

Breeding. Starts late May/Jun. In loose colonies; nest is shallow depression in ground, lined with grass, feathers and down. Usually c. 5 eggs (1-8); incubation c. 24-25 days; chicks have grey down above, whitish below; fledging c. 50-60 days. Sexual maturity at 3, occasionally 2, years.
Movements. Migratory, wintering along Aleutian Is and Gulf of Alaska, with smaller numbers in Kamchatka. Occasionally much further S, having reached California, Hawaii and Japan.
Status and Conservation. Not globally threatened. Has undergone marked decline in recent times. Siberian population poorly known, but apparently numbers 12,000+ individuals; probably never very numerous and currently declining, with significant range reduction in W. Alaskan population has decreased from estimated 150,000 birds in autumn 1976, to 46,000 wintering recently in W North America; factors behind this decline not well known.
Bibliography. Armstrong (1983), Bellrose (1976), Dementiev & Gladkov (1952), Eisenhauer & Kirkpatrick (1977), Eisenhauer *et al.* (1971), Headley (1967), McCabe (1990), Petersen (1980), Petersen & Gill (1982), Quinn *et al.* (1991), Rohwer *et al.* (1989), Terres (1980), Thompson (1987), Thompson & Raveling (1987, 1988).

Genus *BRANTA* Scopoli, 1769

28. Hawaiian Goose

Branta sandvicensis

French: Bernache néné **German**: Hawaiigans **Spanish**: Barnacla Nené
Other common names: Néné, Néné Goose

Taxonomy. *Anser sandvicensis* Vigors, 1833, Hawaiian Islands.
Sometimes placed in monospecific genus *Nesochen*. Monotypic.
Distribution. Hawaii I; reintroduced to Maui I, where may formerly have bred.

Descriptive notes. 56-71 cm; c. 1920-2215 g. Distinctive neck pattern, with noticeable lines of feather grooves on both sides, renders species unmistakable. Female slightly smaller. Juvenile has more mottled body and a dull version of adult head and neck pattern.
Habitat. Lava flows on poorly vegetated volcanic slopes at 1500-2500 m; also, where available, grassland.
Food and Feeding. Essentially vegetarian; grasses, herbs, berries, leaves and green parts of sedges and plants with high water content. Forages almost exclusively on land, by grazing and plucking food items.
Breeding. Starts Oct/Nov. In isolated pairs; nest is depression on ground, sometimes surrounded by fringe of vegetation, lined with down, built between slabs of lava. Usually 3-5 eggs; incubation c. 29 days; chicks have brown down, with whitish markings mainly on underparts; fledging c. 10-12 weeks. Sexual maturity at 2-3 years.
Movements. Mostly sedentary, with only evidence of small-scale, local movements.
Status and Conservation. VULNERABLE. CITES I. Introduction of alien predators to breeding islands resulted in massive decline in numbers: c. 25,000 at end of 18th century, but only 30 by 1952. Captive breeding undertaken by Wildfowl and Wetlands Trust, in England, and Hawaii Division of Fish and Game as early as 1949, with releases into wild of c. 1400 birds between 1960 and 1976; these survived well but have not proliferated, and at present wild population still numbers only c. 350 birds. Haleakala National Park holds c. 150 birds, and numbers appear to be stable in recent years. Of eight areas where birds released: one has stable population; two populations increasing due to intensive control of predators and bolstered food supply; and remaining five decreasing, and dependent on continual reintroductions. Full recovery of species requires elimination, or control, of introduced predators, especially mongooses, and further introductions of birds bred in captivity.
Bibliography. Baldwin (1945, 1947), Banko (1988), Banko & Manuwal (1982), Berger (1972), Black (1991), Collar & Andrew (1988), Devick (1981a, 1981b), Dollinger (1988), Elder & Woodside (1958), Greenway (1967), Hodges (1991), Hoshide *et al.* (1990), Kear & Berger (1980), King (1978/79), Miller (1937), Munro (1960), Pratt *et al.* (1987), Quinn *et al.* (1991), Ripley (1965), Scott & Kepler (1985), Smith (1952), Vincent (1966), Weller (1980), Zimmerman (1974).

29. Canada Goose

Branta canadensis

French: Bernache du Canada **German**: Kanadagans **Spanish**: Barnacla Canadiense
Other common names: Aleutian Canada Goose (*leucopareia*); Cackling Canada Goose (*minima*); Taverner Canada Goose (*taverneri*); Dusky Canada Goose (*occidentalis*); Vancouver Canada Goose (*fulva*); Lesser Canada Goose (*parvipes*); Moffitt Canada Goose (*moffitti*); Giant Canada Goose (*maxima*); Baffin Island Canada Goose (*hutchinsii*); Hudson Bay Canada Goose (*interior*); Atlantic Canada Goose (*canadensis*)

Taxonomy. *Anas canadensis* Linnaeus, 1758, Canada.
Hybridized in captivity with several species of *Branta*, *Anser*, *Cygnus*, also with *Alopochen aegyptiacus* and *Cairina moschata*; in the wild only rarely with *Anser caerulescens*. Taxonomic status of subspecies not clear, mainly due to presence of many intergrading zones between two or more races; several, especially *taverneri*, not accepted by some authors, while others split the complex into as many as four distinct species; race *asiatica*, described from Commander and Kuril Is and listed as extinct in first edition of Red Data Book, now considered synonymous with *leucopareia*. Eleven subspecies normally recognized.

Tribe CEREOPSINI

Genus *CEREOPSIS* Latham, 1801

33. Cape Barren Goose

Cereopsis novaehollandiae

French: Céréopse cendrée **German**: Hühnergans **Spanish**: Ganso Cenizo
Other common names: Cereopsis Goose

Taxonomy. *Cereopsis N. Hollandiae* Latham, 1801, New South Wales = islands of Bass Strait. Population of Recherche Archipelago has been assigned subspecies *grisea*, though doubtfully valid. Monotypic.
Distribution. Islands off S Australia, Tasmania.

Descriptive notes. 75-100 cm; 3170-6800 g, female lighter. Unmistakable. Juvenile averages slightly lighter with heavier spotting on wings.
Habitat. Breeds in scrub and grassy areas on offshore islands; also frequents beaches, coastal pasture and edges of lakes and lagoons. Does not enter water except when moulting or rearing young.
Food and Feeding. Essentially vegetarian; leaves, stems and seeds of grasses (tussock), sedges and other plants with high water content. A specialist grazer, feeds almost exclusively on land.
Breeding. In winter, starts May/Jun. In single pairs or loose colonies; builds shallow nest of vegetation on ground, lined with down. Average 5 eggs (3-6); incubation c. 34-37 days; chicks have black down above, light grey below; fledging 70-76 days. In one study, 89% of eggs hatched and 54% fledged.
Movements. Partially dispersive after breeding season, with some remaining on nesting islands but others flying to other, larger islands or to adjacent mainland, where species has occurred quite far inland.
Status and Conservation. Not globally threatened. Total population reckoned to be c. 15,000-17,000 birds in 1980's; apparently stable, after major declines earlier in 20th century. Population estimates include: 3500-10,000 birds on Eyre Peninsula, South Australia; 1000 on Recherche Archipelago, Western Australia; and 500 on Wilson's Promontory, Victoria. Furneaux Is, Tasmania, hold large population with 9000 individuals counted in 1988, and numbers increasing; annual production of 4000 goslings from over 3000 breeding geese. Finally extinct in New Zealand, where survived for decades after being introduced. Favourable habitats created for agriculture have assured population recovery after halting of uncontrolled persecution; extensive modifications for agriculture may have negative effects on breeding grounds. Management, perhaps including limited grazing, may be necessary on breeding islands designated as nature reserves, to avoid them reverting to dense scrubland. Extent of damage to pastures is still matter for debate; farmers have been permitted limited amount of shooting in Tasmania.
Bibliography. Bull *et al.* (1985), Delroy *et al.* (1989), Falla *et al.* (1981), Frith (1967), Guiler (1967, 1974), Kear & Murton (1973), Marchant & Higgins (1990), Marriott (1970), Pearse (1975), Robinson *et al.* (1982), Schodde & Tidemann (1988), Velichko (1988), Veselovsky (1973), Vincent (1966), Williams (1968).

Tribe STICTONETTINI

Genus *STICTONETTA* Reichenbach, 1853

34. Freckled Duck

Stictonetta naevosa

French: Stictonette tachetée **German**: Affengans **Spanish**: Pato Pecoso

Taxonomy. *Anas naevosa* Gould, 1841, Western Australia. Monotypic.
Distribution. SE and extreme SW Australia.

Descriptive notes. 50-55 cm; 691-1130 g. Unmistakable with shape of head and bill diagnostic. Female has paler and less contrasting plumage. Juvenile resembles female but is paler with deeper buff freckles.
Habitat. Freshwater lakes and marshes with abundant emergent and fringe vegetation. Also occurs on coastal lagoons of brackish waters and floodplains.
Food and Feeding. Mainly vegetarian; algae, seeds and green parts of aquatic plants, grasses and minor quantities of aquatic invertebrates (insects). Forages by upending in shallow water, bottom filtering, dabbling and wading along shore and nibbling on surface.
Breeding. Season largely determined by flooding conditions but broadly Jun-Dec. Builds bowl-shaped nest of finely woven twigs among reedbeds or on water. Average 7 eggs (5-10); incubation c. 26-31 days; chicks have buff and brown down; fledging c. 9 weeks. Sexual maturity reached by females at 2 years (in captivity).
Movements. Occurs irregularly outside main centres of distribution, with dispersive movements particularly linked to water availability and extent of flooding. May be encountered almost anywhere in Australia but only exceptionally in Tasmania.
Status and Conservation. INSUFFICIENTLY KNOWN (under review). Total population estimated at 19,000 birds in E Australia, with estimated 3000 birds in Victoria; only c. 1000 in isolated W population. In Jan-Feb 1983, during period of drought, 8000 counted in E Australia, with more than 700 at L Salisbury, New South Wales. Decline in recent decades as many freshwater wetlands which were previously suitable for breeding have been destroyed or modified by drainage, flood mitigation works, clearing, grazing, burning, salinization or increased flooding. Illegal hunting persists, and species under severe pressure, because easy to shoot and tends to form large concentrations in parts of S, in connection with droughts. In Victoria, pre-season counts started in 1987 to identify wetlands with large numbers of present species, in order to establish temporary closure to shooting; waterfowl identification tests for licensed shooters introduced in 1989. Also threatened by human disturbance in areas used for recreation.
Bibliography. Braithwaite (1976), Collar & Andrew (1988), Frith (1964a, 1964b, 1965, 1967), Frith *et al.* (1969), Halse & Jaensch (1989), Johnsgard (1965b), Marchant & Higgins (1990), Schodde & Tidemann (1988).

Subfamily ANATINAE

Tribe TADORNINI

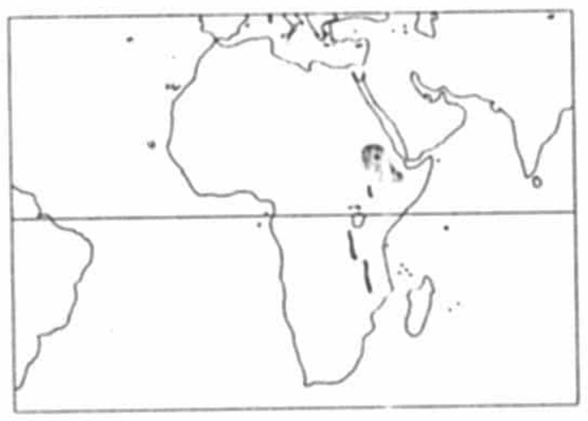
Genus *CYANOCHEN* Bonaparte, 1856

35. Blue-winged Goose

Cyanochen cyanopterus

French: Ouette à ailes bleues **German**: Blauflügelgans **Spanish**: Ganso Aliazul
Other common names: Abyssinian Blue-winged/Abyssinian Goose

Taxonomy. *Bernicla cyanoptera* Rüppell, 1845, Shoa, Ethiopia. Monotypic.
Distribution. Highlands of Ethiopia.



Descriptive notes. 60-75 cm; c. 1520 g (female). Almost unmistakable. Often walks or rests with head held backwards. Upperwing-coverts a distinctive powder blue. Female smaller. Juvenile duller.
Habitat. Grassy meadows and pastures above 1400 m adjacent to rivers, lakes and pools which lack dense marginal vegetation; does not normally enter deep water.
Food and Feeding. Grasses, sedges and green parts of other plants obtained by grazing on dry land in meadows and rough pasture along river banks; invertebrates (worms, adults and larvae of insects, snails) and small reptiles also recorded.
Breeding. Starts Mar. In single pairs; nest built on ground, concealed amidst vegetation. Usually 4-7 eggs (4-12); incubation c. 30-34 days; chicks have black-brown down above, silvery white below; fledging 85-100 days. Sexual maturity probably at 2 years.
Movements. Mostly sedentary, with only a few, small-scale movements recorded, generally related to altitudinal shifts.
Status and Conservation. Not globally threatened. Still considered locally common within its very restricted range. Survey of Web Valley in 1966 produced 30 pairs in 40 km, with extrapolated total of 200-300 pairs for whole valley; density thought to be lower elsewhere. Not threatened by hunting since religious beliefs have prevented its being hunted; probably threatened by growth of human population, with concurrent transformation of habitats. More precise information needed on present numbers and conservation requirements.
Bibliography. Blaauw (1927), Brickell (1988), Brown, L.H. (1966), Brown *et al.* (1982), Delacour (1954-1964), Kolbe (1972), von Loeffler (1977), Mackworth-Praed & Grant (1957-1973), Urban (1980), Veselovsky (1989).

Genus *CHLOEPHAGA* Eyton, 1838

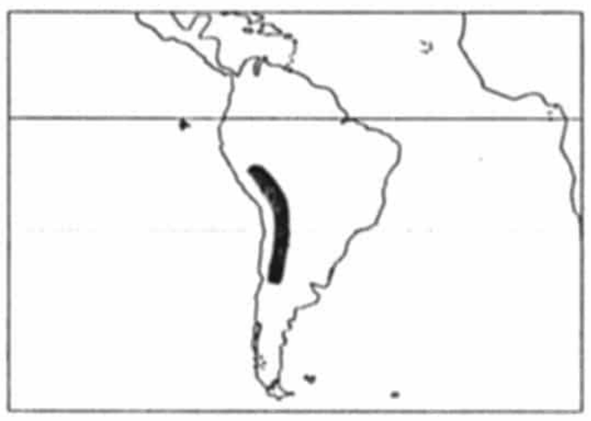
36. Andean Goose

Chloephaga melanoptera

French: Ouette des Andes **German**: Andengans **Spanish**: Cauquén Guayata

Taxonomy. *Anser melanopterus* Eyton, 1838, Lake Titicaca. Monotypic.
Distribution. Andes from C Peru to C Argentina.
Descriptive notes. 70-80 cm; 2730-3640 g. Female smaller. Unmistakable. All *Chloephaga* have white wing-coverts and secondaries obvious, in flight. Greater coverts show glossy speculum; purple

On following pages: 37. Upland Goose (*Chloephaga picta*); 38. Kelp Goose (*Chloephaga hybrida*); 39. Ashy-headed Goose (*Chloephaga poliocephala*); 40. Ruddy-headed Goose (*Chloephaga rubidiceps*); 41. Orinoco Goose (*Neochen jubata*); 42. Egyptian Goose (*Alopochen aegyptiacus*).



in present species and metallic green in all others except male *C. hybrida* which shows totally white speculum. Juvenile drabber.
Habitat. Variety of wetlands on high ground (above 3300 m), surrounded by grassland and rough pastures. Often forced to descend to lower altitudes by winter snow.
Food and Feeding. Mainly vegetarian, especially grasses, sedges and fleshy aquatic plants (*Chara, Lilaeopsis, Myriophyllum, Nostoc*).
Breeding. Starts Nov. In single pairs or loose groups; builds shallow nest of vegetation on ground. 5-10 eggs; incubation c. 30 days; chicks have white down with three blackish bands above; fledging c. 12 weeks. Sexual maturity at 3 years.
Movements. Mostly sedentary, with only small-scale movements recorded and generally linked to altitudinal shifts.
Status and Conservation. Not globally threatened. Generally widespread and common throughout most of range; common in *puna* of Peru. No information available on size of population. In Feb 1982, 2000 individuals recorded at Laguna Pozuelos, Argentina. Apparently fairly well isolated from typical human threats, because inhabits inaccessible areas; species quite unsuitable for human exploitation.
Bibliography. Blake (1977), Carp (1991), Delacour (1954-1964), Fjeldså & Krabbe (1990), Hellmayr & Conover (1948), Hiebl & Braunitzer (1988), Johnson (1965), Kolbe (1979), Narosky & Yzurieta (1987), de la Peña (1986), Scott & Carbonell (1986), Summers & Castro (1988).

37. Upland Goose
Chloephaga picta

French: Ouette de Magellan **German**: Magellangans **Spanish**: Cauquén Común
Other common names: Lesser Magellan Goose (*picta*); Greater/Falkland Magellan Goose (*leucoptera*)

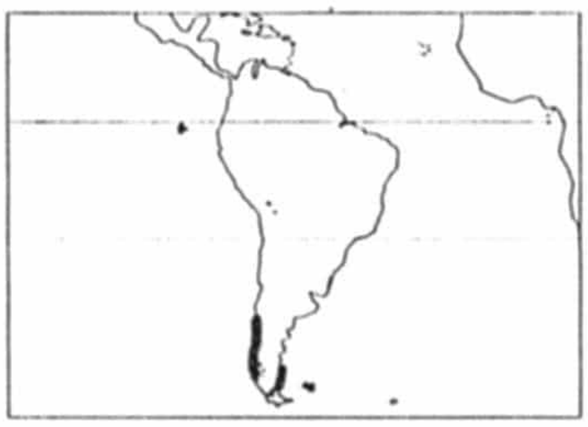
Taxonomy. *Anas picta* Gmelin, 1789, Staten Island.
Two subspecies recognized.
Subspecies and Distribution.
C. p. picta (Gmelin, 1789) - C Chile and C Argentina to Tierra del Fuego.
C. p. leucoptera (Gmelin, 1789) - Falkland Is.

Descriptive notes. 60-72·5 cm; 2721-3200 g. Unmistakable. Strongly barred. Two morphs separated on extension of barring. Juvenile male has dusky brown feathers on head. Race *leucoptera* is larger; male has narrower ventral bars.
Habitat. Continental birds not generally associated with water, frequenting dry pastures and arable land for most of year; on grassy islands or coastal meadows in Falkland Is, often far from water too.
Food and Feeding. Almost exclusively vegetarian; leaves, stems and seed-heads of grasses (*Poa annua, P. pratensis*) and sedges. Feeds mainly by grazing on dry meadows and rough pasture.
Breeding. Starts Sept (Falklands) or Oct/Nov (continent). In single pairs or loose groups; nest on ground, among vegetation, preferably near water. 5-8 eggs; incubation c. 30 days; chicks have olive grey or drab brown down; fledging c. 9-10 weeks. Sexual maturity at 3 years.
Movements. Birds of southernmost part of range descend to lower latitudes (occurring N to Buenos Aires Province, Argentina, and exceptionally to Uruguay) during austral winter. Falkland Is population mostly sedentary.
Status and Conservation. Not globally threatened. Total numbers unknown; formerly very numerous, with records of flocks of thousands. Widely distributed and abundant, both on continent and in Falkland Is, where is especially common on greens and settlements, around ponds and by creeks in coastal areas. During breeding season of 1973, 25,000-30,000 recorded in Tierra del Fuego. Partial census of Meseta de Strobel, Argentina, in Feb 1984 yielded 3700 individuals. Treated as pest and intensely persecuted by farmers and cattle breeders, who destroy eggs and kill large numbers, when birds moulting and therefore flightless.
Bibliography. Blake (1977), Carp (1991), Clark (1986), Fjeldså & Krabbe (1990), Hellmayr & Conover (1948), Humphrey *et al.* (1970), Johnson (1965), Kolbe (1979), Martin, S. (1984), Narosky & Yzurieta (1987), de la Peña (1986), Scott & Carbonell (1986), Siegfried *et al.* (1988), Weller (1972, 1975d), Woods (1988).

38. Kelp Goose
Chloephaga hybrida

French: Ouette marine **German**: Kelpgans **Spanish**: Cauquén Caranca

Taxonomy. *Anas Hybrida* Molina, 1782, Chiloé Island.
Two subspecies recognized.



Subspecies and Distribution.
C. h. hybrida (Molina, 1782) - S Chile, Tierra del Fuego.
C. h. malvinarum Phillips, 1916 - Falkland Is.
Descriptive notes. 55-65 cm; c. 2041-2607 g. Female slightly smaller, with totally different plumage. Juvenile male as female but with brown greater coverts and dull greenish yellow legs. Juvenile female has dark uppertail-coverts. Race *malvinarum* is larger, especially evident in bill.
Habitat. Breeds on coastal freshwater lakes but spends most of year along rocky coastlines or on shingle beaches.
Food and Feeding. Almost entirely vegetarian; forages along the coastline feeding on seaweed and algae; also green grasses on breeding grounds and berries in winter.
Breeding. Starts Oct/Nov. In single pairs or loose groups; nest made from grasses, lined with down, situated on low rocky outcrops or on ground among vegetation. 3-7 eggs; incubation c. 30 days; fledging c. 12-13 weeks. Sexual maturity at 3 years.
Movements. Continental race relatively sedentary, with small-scale winter movements along coast of Chile and up Atlantic coast of Argentina. Falkland Is population mostly sedentary.
Status and Conservation. Not globally threatened. Size of total population unknown, but thought to be abundant. Common resident and widely distributed in Falkland Is. In past, population on E coast of Isla Grande (Tierra del Fuego) was reported to number hundreds. Situation similar to that of *C. melanoptera*, as does not compete with human interests due to inaccessibility and types of habitats preferred; no evidence of any significant threats.
Bibliography. Blake (1977), Clark (1986), Gladstone & Martell (1968), Hellmayr & Conover (1948), Humphrey *et al.* (1970), Johnson (1965), Narosky & Yzurieta (1987), Pettingill (1965), Scott & Carbonell (1986), Weller (1972, 1975d), Woods (1975, 1988).

39. Ashy-headed Goose
Chloephaga poliocephala

French: Ouette à tête grise **German**: Graukopfgans **Spanish**: Cauquén Cabecigrís

Taxonomy. *Chloëphaga poliocephala* P. L. Sclater, 1857, Chiloé Island.
Monotypic.
Distribution. S Chile and S Argentina to Tierra del Fuego.

Descriptive notes. 50-60 cm; 2200-2267 g. Unmistakable. Sexes alike, female slightly smaller with finely barred breast. Juvenile has much duller rufous areas; mantle and breast more strongly barred; speculum tending towards dark brown rather than metallic green.
Habitat. Favours damp forest clearings on high ground and islands. Winters on more open habitat, frequenting natural meadows and rough pastures.
Food and Feeding. Presumably mainly vegetarian; leaves, stems and seed-heads of grasses and sedges. Feeds by grazing on meadows and rough pasture.
Breeding. Starts Oct/Nov. In single pairs or loose groups; nest abundantly lined with down, and placed in tree-hollows or long grass. 4-6 eggs; incubation c. 30 days; chicks have olive grey or drab brown down.
Movements. Partially migratory, moving N to winter in *pampas* region to Buenos Aires Province, Argentina. Has occurred E to Falkland Is.
Status and Conservation. Not globally threatened. Total population unknown. Considered especially common in Chile; rarer in rest of range; rare in Falklands, and relatively scarce in Tierra del Fuego where 2000-3000 birds counted during breeding season of 1973. Relatively free from human persecution at breeding grounds, but in winter associates with other, more abundant sheldgeese and suffers the same persecution by farmers; possible effects on population should be investigated to prevent risk of significant decline.
Bibliography. Blake (1977), Carp (1991), Clark (1986), Fjeldså & Krabbe (1990), Hellmayr & Conover (1948), Humphrey *et al.* (1970), Johnson (1965), Kolbe (1979), Narosky & Yzurieta (1987), de la Peña (1986), Scott & Carbonell (1986), Siegfried *et al.* (1988), Weller (1975d), Woods (1988).

40. Ruddy-headed Goose
Chloephaga rubidiceps

French: Ouette à tête rousse **German**: Rotkopfgans **Spanish**: Cauquén Colorado

Taxonomy. *Chloëphaga rubidiceps* P. L. Sclater, 1861, Falkland Islands.
Monotypic.
Distribution. Extreme S South America, Tierra del Fuego, Falkland Is; formerly more widespread.

Descriptive notes. 45-52·5 cm; c. 2000 g. Female slightly smaller; structure as in *C. picta* but coloration different; considerably smaller with thinner barring on underparts. Juvenile much duller with blackish speculum.
Habitat. Open country, frequenting coastal grassland and meadows; often occurs together with *C. picta*.
Food and Feeding. Almost entirely vegetarian; roots, leaves, stems and seed-heads of grasses and sedges. Feeds mostly on land, often by digging out with bill.
Breeding. Starts Sept/Oct. In single pairs or loose groups; nest lined with down, on ground, among vegetation or boulders. 5-8 eggs; incubation c. 30 days.
Movements. Falkland Is population virtually sedentary; Tierra del Fuego birds move N to winter on grasslands of Buenos Aires Province, Argentina.
Status and Conservation. Not globally threatened. Population of mainland S America in critical state: has decreased dramatically and may now number under 1000 birds, if it still exists. Persecuted by hunters and farmers, as is not distinguished from *C. picta*; considered pest in Argentina, at least until end of 1970's. Was abundant in Tierra del Fuego during 1950's, after which declined sharply, partly due to introduction of Patagonian fox (*Dusicyon griseus*), which occupies same habitat. Census of Tierra del Fuego during breeding season of 1973 only yielded 30 birds. Fairly common resident in Falklands despite being treated as pest; 100,000 killed in period 1905-1912, and fair numbers still killed each year; apparently mobility of species renders efforts to reduce its numbers ineffective. Particularly large numbers in dry coastal grassland on W Falkland. Estimated 38,000-141,000 birds in Falklands during 1970's. Considered Vulnerable in Red Data Book (1978/79), but has been removed from threatened list due to size and stability of population of Falklands, and its apparent resilience in face of persecution.
Bibliography. Bertonatti *et al.* (1991), Blake (1977), Collar & Andrew (1988), Diamond *et al.* (1987), Fjeldså & Krabbe (1990), Hellmayr & Conover (1948), Humphrey *et al.* (1970), Johnson (1965), Johnstone (1985), King (1978/79), Kolbe (1979), de la Peña (1986), Plotnik (1961), Rumboll (1975b, 1991), Scott (1954a), Scott & Carbonell (1986), Siegfried *et al.* (1988), Weller (1972, 1975d), Woods (1975, 1988).